Evaluative Report of the Department

Name of the institution : Sadakathullah Appa college			**Name of the Department : Mathematics**
District : Tirunelveli			**State : Tamil Nadu**
Total Number of Departments in the institution :		**19**	
Sl. No.	**Name of the Department**	MATHEMATICS	
1	**Year of Establishment**	B.Sc (Mathematics) Aided - 1972	
		M.Sc (Mathematics) UnAided - 2007	
		B.Sc (Mathematics) (UnAided) - 2015	
		M.Phil (Mathematics)- 2017	
		Ph.D (Mathematics)- 2017	
		Certificate Course in Latex and MATLAB -2016	
		Certificate Course in Discrete Mathematics -2018	
2	**Is the Department part of a School/ Faculty of the Institution**	Yes, Faculty of Institution	
3	**Names of programmes offered**	B.Sc, M.Sc , M.Phil and Ph.D, Certificate Course in Latex and MATLAB and Certificate Course in Discrete Mathematics	
4	**Number of teaching posts Sanctioned/ Filled**	**Sanctioned**	**Filled**
	2016-17	11	11
	2017-18	12	12
	2018-19	12	12
	2019-20	12	12
	2020 - 21	12	12
5	**Number of Research Projects:**	**No.**	**Total Grants Received**
	2016-17	3	Rs. 5,90,000 (Five Lakhs Ninety Thousand)
	2017-18	Nil	Nil
	2018-19	Nil	Nil
	2019-20	Nil	Nil
	2020 - 21	Nil	Nil
	TOTAL	3	Rs. 5,90,000 (Five Lakhs Ninety Thousand)

6	**Inter –institutional collaborative projects and Associated grants received**	**National collaboration Number**	**Grant Received**	**International collaboration Number**	**Grant Received**
	2016-17	Nil	Nil	Nil	Nil
	2017-18	Nil	Nil	Nil	Nil
	2018-19	Nil	Nil	Nil	Nil
	2019-20	Nil	Nil	Nil	Nil
	2020 - 21	Nil	Nil	Nil	Nil
	TOTAL	Nil	Nil	Nil	Nil

7	**Departmental projects funded by DST-FIST,DBT, ICSSR, etc., : Total grants received**	**DST-FIST**	**DBT**	**ICSSR**	**_____Mention name, if others**
	2016-17	Nil	Nil	Nil	Nil
	2017-18	Nil	Nil	Nil	Nil
	2018-19	Nil	Nil	Nil	Nil
	2019-20	Nil	Nil	Nil	Nil
	2020-21	Nil	Nil	Nil	Nil
	TOTAL	Nil	Nil	Nil	Nil

8	**Special research laboratories sponsored by/created by industry or corporate bodies:**	
	2016-17	Nil
	2017-18	Nil
	2018-19	Nil
	2019-20	Nil
	2020 - 21	Nil

9	**Publications:**	**Number of Papers published**	**Number of Books with ISBN**	**itation Index – ran**	**Impact Factor – rang**	**Number of h-index**
	2016-17	12	Nil	7	20.716	
	2017-18	11	1	3	38.347	
	2018-19	13	1	0	35.101	
	2019-20	26	1	11	35.997	
	2020-21	17	1	12	2.504	
	TOTAL	79	4	33	132.665	10

10	**Details of patents and income generated**	*Patent details*	*Income Generated*
	2016-17	Nil	Nil
	2017-18	Nil	Nil
	2018-19	Nil	Nil
	2019-20	Nil	Nil
	2020 - 21	Nil	Nil

11	**Areas of consultancy and income generated**	**Details**			**Income Generated**	
	2016-17	Nil			Nil	
	2017-18	Nil			Nil	
	2018-19	Nil			Nil	
	2019-20	Nil			Nil	
	2020 - 21	Nil			Nil	
12	**Awards/Recognitions received at the National and International level by :**	**Faculty**	**Doctoral/Post doctoral fellows**		**Students**	
	2016-17	Nil	Nil		Nil	
	2017-18	Nil	Nil		2	
	2018-19	2	Nil		Nil	
	2019-20	4	Nil		17	
	2020 - 21	Nil	Nil		11	
	TOTAL	6	Nil		30	
13	**How many students have cleared Civil Servicesand Defense Services examinations, NET, SET (SLET), GATE and other competitive examinations**					
		Civil Service	**NET**	**SET (SLET)**	**GATE**	**Other Competitive Exam**
	2016-17	Nil	Nil	Nil	Nil	Nil
	2017-18	Nil	Nil	Nil	Nil	2
	2018-19	Nil	Nil	1	Nil	Nil
	2019-20	Nil	Nil	Nil	Nil	1
	2020 - 21	Nil	Nil	Nil	Nil	1
	TOTAL	Nil	Nil	1	Nil	4
14	**List of doctoral, post-doctoral students and research associates**	**From the host institution/university**			**From other institutions/universities**	
	2016-17	Nil			Nil	
	2017-18	Nil			4	
	2018-19	11			0	
	2019-20	1			0	
	2020-21	5			nil	
	TOTAL	17			4	
15	**Number of Research Scholars/ Post Graduate students getting financial assistance from the University/State/ Central**	**University**	**State**		**Central**	
	2016-17	Nil	Nil		Nil	
	2017-18	Nil	Nil		Nil	
	2018-19	Nil	Nil		Nil	
	2019-20	Nil	2		Nil	
	2020 - 21	Nil	1		Nil	
	TOTAL	Nil	3		Nil	

Note: ***Compile data for the last five years***

Phone No. (Office) 574763
(Principal) 574335

P.B. No. 7

SADAKATHULLAH APPA COLLEGE

RAHMATH NAGAR,
TIRUNELVELI - 627 011.

Rc. No. 12-C/99 Date 22-02-2000

Proceedings of the Secretary, Sadakathullah Appa College, Rahmath Nagar, Tirunelveli - 627 011.

- x -

Present : Hajee T.E.S. Fathu Rabbani

- x -

APPOINTMENT ORDER

Tmty. A. Rashetha Begam, M.Sc., M.Phil. is temporarily appointed as Lecturer in Mathematics with effect from the F.N. of 22-02-2000 with the Basic Pay of Rs. 8,000/- per month in the scale of pay of Rs. 8000-275-13500 with other usual allowances at Govt. rates.

This Appointment Order is subject to the approval of the Registrar, Manonmaniam Sundaranar University, Tirunelveli-627012 and the Joint Director of Collegiate Education, Tirunelveli Region, Tirunelveli - 627 002.

SECRETARY

To

Tmty A. Rashetha Begam, M.Sc., M.Phil.,
69A, 5th Cross Street,
(B.P.C.L. Quarters) Maharaja Nagar,
Tirunelveli - 627 011.

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/SHA/

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TIRUNELVELI - 627 011
Accredited with B+ GRADE by NAAC
An ISO 9001:2000 Certified Institution

Dt. 18/08/2006

Rc. No.7-C/2006

Proceedings of the Secretary, Sadakathullah Appa College, Rahmath Nagar, Tirunelveli-627 011.

*****

Present : Hajee T.E.S. Fathu Rabbani

*****

Appointment Order

Miss. S. Firthous Fatima, M.Sc., M.Phil., is temporarily appointed as Lecturer in Mathematics with effect from the F.N. of 18/08/2006 in the Scale of pay of Rs.8000-275-13500 with other usual allowances at Govt. rates.

This appointment order is subject to the approval of the Registrar, Manonmaniam Sundaranar University, Tirunelveli-627 012 and the Joint Director of Collegiate Education, Tirunelveli Region, Tirunelveli-627 003.

SECRETARY

To

Miss. S. Firthous Fatima, M.Sc., M.Phil.,
216/1, First Middle Street,
Thiyagaraja Nagar,
Tirunelveli-627 011.

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k.b./shunmugam/95

Ph : 2540763, Fax : (0462) 254033 E-mail : principal@sadakath.ac.in

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Rc.No.7-C/2007 22.08.2007

Proceedings of the Secretary, Sadakathullah Appa College, Rahmath Nagar, Tirunelveli – 627 011.

****

Present: Hajee T.E.S. Fathu Rabbani

****

Appointment Order

Tmty. M. Himaya Jaleela Begum, M.Sc., M.Phil., is temporarily appointed as Lecturer in Mathematics with effect from the F.N. of 22/08/2007 in the Scale of pay of Rs. 8000 – 275 – 13500 with other usual allowances at Govt. rates.

This appointment order is subject to the approval of the Registrar, Manonmaniam Sundaranar University,Tirunelveli-627 012 and the Joint Director of Collegiate Education, Tirunelveli Region, Tirunelveli - 627 003.

SECRETARY

To

Tmty. M. Himaya Jaleela Begum, M.Sc., M.Phil.,
25, Methamarpalayam
4th Street, Melapalayam
Tirunelveli - 627 005.

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Rasool/Order/Appoint

Ph : 2540763, Fax : (0462) 254033 E-mail : principal@sadakath.ac.in

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Rc.No.7-C/2007 22.08.2007

Proceedings of the Secretary, Sadakathullah Appa College, Rahmath Nagar, Tirunelveli – 627 011.

****

Present: Hajee T.E.S. Fathu Rabbani

****

Appointment Order

Tmty. S. Syed Ali Fathima, M.Sc., M.Phil., is temporarily appointed as Lecturer in Mathematics with effect from the F.N. of 22/08/2007 in the Scale of pay of Rs. 8000 – 275 – 13500 with other usual allowances at Govt. rates.

This appointment order is subject to the approval of the Registrar, Manonmaniam Sundaranar University, Tirunelveli-627 012 and the Joint Director of Collegiate Education, Tirunelveli Region, Tirunelveli - 627 003.

SECRETARY

To

Tmty. S. Syed Ali Fathima, M.Sc., M.Phil.,
B – 112, 30th Street,
Rahmath Nagar,
Tirunelveli - 627 011.

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Ph: 2540763, Fax: (0462) 254033 E-mail: principal@sadakath.ac.in

Sadakathullah Appa College

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Rc. No. 155/APP-2C/2017 Date : 18.09.2017

Proceedings of the Secretary, Sadakathullah Appa College,
Rahmath Nagar, Tirunelveli-627 011.

*****

PRESENT : HAJEE T.E.S. FATHU RABBANI

*****

APPOINTMENT ORDER

Dr. N. MOHAMED RILWAN, M.Sc., Ph.D., is temporarily appointed as Assistant Professor of Mathematics in our College with effect from the forenoon of 18.09.2017 in the place of vacancy that arose due to the retirement of Thiru S.M.B. JAHUBER ALI, Associate Professor of Mathematics (an approved post) from the afternoon of 31.08.2011 in the scale of pay, Rs.15600-39100 and Academic Grade pay of Rs. 6000 and other usual allowances at Government rates.

This appointment is subject to the approval of Manonmaniam Sundaranar University, Tirunelveli – 627 012 and the Joint Director of Collegiate Education, Tirunelveli region, Tirunelveli - 627 008.

SECRETARY

To
Dr. N. MOHAMED RILWAN, M.Sc., Ph.D.,
71/167, Periya Kothba Pallivasal North West Street,
Melapalaiyam,
Tirunelveli – 627 005.

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Proceedings of the Secretary, Sadakathullah Appa College

Rahmath Nagar,Tirunelveli – 627 011

*****

Present:Alhaj.T.E.S.Fathu Rabbani

*****

RC.No.12765/UA/2016 **Date:16.02.2016**

Sub: Unaided Courses Sadakathullah Appa college- Appointment for the post of Assistant Professor in the Department of Mathematics Orders- issued

Ref: Interview on 09.02.2016.

ORDER:

Tmt. U.JERSEENA M.Sc., M.Phil., is temporarily appointed as an Assistant Professor in the Department of Mathematics at a consolidated salary of Rs.10,000/-(Rupees Ten Thousand only) per month with effect from 10.02.2016.

This appointment will be governed by the rules and regulations of the Sadakathullah Appa College. If she wishes to leave the college, she will have to give three months' notice or three months' salary in lieu thereof. Notice, if any, should be given before March 31st of the particular year.

Secretary

To

Tmt. U.JERSEENA M.Sc., M.Phil.,
188/22,Aysha Manzil,
Darling Nagar, KTC Nagar,
Tirunelveli 627 011.

17.2.16

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Proceedings of the Secretary, Sadakathullah Appa College (Autonomous),
Rahmath Nagar, Tirunelveli – 627011.

*****

PRESENT : Alhaj. T.E.S. FATHU RABBANI

Rc.No13879/UA/2017 Date: 21.06.2017

Sub: Unaided Courses – Sadakathullah Appa College- Appointment for the post of Assistant Professor in the Department of Mathematics – orders issued.

Read: Interview on 06.06.2017 and connected records.

*****

ORDERS :

Ms. A. MALLIKA M.Sc., M.Phil., is temporarily appointed as an Assistant Professor in the Department of Mathematics at a consolidated salary of Rs. 13,000/- (Rupees Thirteen Thousand only) per month with effect from 16.06.2017.

This appointment will be governed by the rules and regulations of the Sadakathullah Appa College. If she wishes to leave the College, she will have to give three months' notice or three months' salary in lieu thereof. Notice, if any, should be given before March 31st of the particular year.

SECRETARY

To
Ms. A.MALLIKA, M.Sc., M.Phil.
103, Cheranmahadevi Road,
Siva Hospital, Tirunelveli – 627006.

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Proceedings of the Secretary, Sadakathullah Appa College (Autonomous),
Rahmath Nagar, Tirunelveli – 627011.

*****

PRESENT : Alhaj. T.E.S. FATHU RABBANI

Rc.No.14110/UA/2017 Date: 20.12.2017

Sub: Unaided Courses –Sadakathullah Appa College- Appointment for the post of Assistant Professor in the Department of Mathematics (unaided) – orders issued.

Read: Connected records.

*****

ORDER :

Tmty. J.A. AFRAA NUHAA, M.Sc., M.Phil., is temporarily appointed as an Assistant Professor in the Department of Mathematics (Unaided) at a consolidated salary of Rs.12,000/- (Rupees Twelve Thousand only) per month with effect from 13.09.2017.

This appointment will be governed by the rules and regulations of the Sadakathullah Appa College. If she wishes to leave the College, she will have to give three months' notice or three months' salary (last drawn pay) in lieu thereof. Notice, If any, should be given before March 31st of the particular year.

SECRETARY

To
Tmty. J.A. AFRAA NUHAA, M.Sc., M.Phil.,
W/o. A. Abukaniba Meeran,
7, East Bazaar,
PETTAI
Tirunelveli District PIN:627 004.

20.12.17

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Proceedings of the Secretary, Sadakathullah Appa College (Autonomous),
Rahmath Nagar, Tirunelveli – 627011.

*****

PRESENT : Alhaj. T.E.S. FATHU RABBANI

Rc.No.14280/UA/2017 Date: 20.12.2017

Sub: Unaided Courses –Sadakathullah Appa College- Appointment for the post of Assistant Professor in the Department of Mathematics (unaided) – orders issued.

Read: Connected records.

*****

ORDER :

Tmty. S. ANGELIN KAVITHA RAJ, M.Sc., M.Phil., SET., is temporarily appointed as an Assistant Professor in the Department of Mathematics (Unaided) at a consolidated salary of Rs.13,000/- (Rupees Thirteen Thousand only) per month with effect from 11.12.2017.

This appointment will be governed by the rules and regulations of the Sadakathullah Appa College. If she wishes to leave the College, she will have to give three months' notice or three months' salary (last drawn pay) in lieu thereof. Notice, If any, should be given before March 31st of the particular year.

SECRETARY

To
Tmty. S. ANGELIN KAVITHA RAJ, M.Sc., M.Phil., SET.,
W/o. Mr. J. Aravind Kumar
200E/3, Tiruchendur Road,
PALAYAMKOTTAI,
Tirunelveli District PIN:627 002.

20.12.17

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Proceedings of the Secretary, Sadakathullah Appa College (Autonomous),
Rahmath Nagar, Tirunelveli – 627011.

*****

PRESENT : Alhaj. T.E.S. FATHU RABBANI

Re.No.14279/UA/2017 Date: 20.12.2017

Sub: Unaided Courses –Sadakathullah Appa College- Appointment for the post of Assistant Professor in the Department of Mathematics (unaided) – orders issued.

Read: Connected records.

*****

ORDER :

Ms. R. HEPZIBAH ANITA, M.Sc., M.Phil., SET., is temporarily appointed as an Assistant Professor in the Department of Mathematics (Unaided) at a consolidated salary of Rs.13,000/- (Rupees Thirteen Thousand only) per month with effect from 11.12.2017.

This appointment will be governed by the rules and regulations of the Sadakathullah Appa College. If she wishes to leave the College, she will have to give three months' notice or three months' salary (last drawn pay) in lieu thereof. Notice, If any, should be given before March 31st of the particular year.

SECRETARY

To
Ms. R. HEPZIBAH ANITA, M.Sc., M.Phil., SET.,
9-C, Mupidathi Kovil East Street,
PALAYAMKOTTAI,
Tirunelveli District PIN:627 002.

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Sadakathullah Appa College

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Proceedings of the Secretary, Sadakathullah Appa College (Autonomous),
Rahmath Nagar, Tirunelveli – 627011.

*****

PRESENT : Alhaj. T.E.S. FATHU RABBANI

Rc.No.15241/UA/2018 Date: 21.12.2018

Sub: Unaided Courses –Sadakathullah Appa College- Appointment for the post of Assistant Professor in the Department of Mathematics -orders issued.

Read : Interview on 11.12.2018 and Connected records.

*****

ORDER :

Dr. S. JAMAL FATHIMA, M.Sc., M.Phil., Ph.D., SET., NET., is temporarily appointed as an Assistant Professor in the Department of Mathematics at a consolidated salary of Rs.21,000/- (Rupees Twenty one Thousand only) per month with effect from 12.12.2018.

This appointment will be governed by the rules and regulations of the Sadakathullah Appa College. If she wishes to leave the College, she will have to give three months' notice or three months' salary (last drawn pay) in lieu thereof. Notice, If any, should be given before March 31st of the particular year.

SECRETARY

To
Dr. S. JAMAL FATHIMA, M.Sc., M.Phil., Ph.D., SET., NET.,
15B, Rahmath Nagar,
Moolaikaraipatti,
Tirunelveli -627002

21.12.18

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Proceedings of the Secretary, Sadakathullah Appa College (Autonomous),
Rahmath Nagar, Tirunelveli – 627011.

*****

PRESENT : Alhaj. T.E.S. FATHU RABBANI

Rc.No.11786/SAC/UA/2018 Date: 29.04.2019

Sub: Unaided Courses –Sadakathullah Appa College- Appointment for the post of Assistant Professor in the Department of Mathematics -orders issued.

Read: Interview on 23.04.2019 and Connected records.

*****

ORDER :

Mr. V.P. ASAN NAGOOR MEERAN, M.Sc., SET., is temporarily appointed as an Assistant Professor in the Department of Mathematics at a consolidated salary of Rs.20,000/- (Rupees Twenty Thousand only) per month.

This appointment will be governed by the rules and regulations of the Sadakathullah Appa College. If he wishes to leave the College, he will have to give three months' notice or three months' salary (last drawn pay) in lieu thereof. Notice, if any, should be given before March 31st of the particular year.

SECRETARY

To
Mr. V.P. ASAN NAGOOR MEERAN, M.Sc., SET.,
157/44, Kattu Puthu Street,
Melapalaiyam,
Tirunelveli -627005

29.4.19

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UNIVERSITY GRANTS COMMISSIONS -SOUTH EASTERN REGIONAL OFFICE
5-9-194, CHIRAG ALI LANE, IV FLOOR, A.P.S.F.C. BUILDING, HYDERABAD -500 001
Phones: 040 - 23204735, 23200208 FAX: 040 – 23204734, Website: www.ugc.ac.in, email: ugcsero@gmail.com

No.F MRP-5365/14 (SERO/UGC) March 2014

The Accounts Officer
UGC-SERO, Hyderabad

Comcode: TNMS024

Category: OBC

Sub: Release of Grants-in-aid to Minor Research Projects for the year 2013-2014 .

Sir / Madam,

The has reference to the Minor Research Project proposal submitted by MRS FIRTHOUS FATIMA Department of MATHEMATICS of SADAKATHULLAH APPA COLLEGE RAHMATH NAGAR TIRUNELVELI entitled "**A STUDY ON BI_NEAR SUBTRACTION SEMI GROUPS** ". The subject expert, who evaluated the proposal, has recommended for financial assistance as detailed below.

Sl. No	Item	Amount Allocated (Rs.)	Amount Sanctioned as first installment (Rs.)
1.	Books & Journals	60000.	60000.
2.	Equipment	85000.	85000.
	Total	145000.	145000.
3.	Field work & Travel	30000.	15000.
4.	Chemical & Glass Ware	0 0	0 0
5.	Contingency (incl. Special Needs)	30000.	15000.
6.	Hiring Services	0 0	0 0
	Total	60000.	30000.
	Grand Total	205000.	175000.

1. I am further to convey the sanction of the University Grants Commission to the payment of Rs.**175000.** to the principal, SADAKATHULLAH APPA COLLEGE,RAHMATH NAGAR,TIRUNELVELI as first installment (100% Non-Recurring and 50% Recurring grants) towards the above project.

GRANTS IN AID (31)

Amount Sanctioned	SC (15%) 2D(i)	ST (7.5%) 2D(ii)	General (77.5%) 5(Viii)
Rs.145000./-	Rs.21750. /-	Rs10875./-	Rs.112375.

CAPITAL (35)

Amount Sanctioned	SC (15%) 2D(i)	ST (7.5%) 2D(ii)	General (77.5%) 5(Viii)
Rs.30000./-	Rs4500. /-	Rs2250./-	Rs.23250./-

2. **The above approval is subject to the general conditions of grants prescribed by the UGC for this scheme**.
3. The amount of the grant shall be drawn by the Accounts Officer, SERO-UGC, Hyderabad and on the Grants-in-Aid bill and shall be disbursed to and credited to the Principal of the College ***through Electronic mode. The sanction is valid for payment for the year 2013-2014.***
4. **In case the Principal investigator is having ongoing Major/Minor Research Project OR has been transferred/left/retired from the college, the released amount may be returned to UGC-SERO, Hyderabad immediately**.
5. The grantee institution shall ensure the utilization of grants –in-aid for which it is being sanctioned/paid. in case of non-utilization /part utilization, **interest @ 10% per annum** as amended from time to time on utilized amount from the date of drawl to the date of refund as per provision contained in General Financial Rules of Govt. of India will be charged.
6. The assets acquired wholly or substantially out of UGC's grants shall not be disposed or encumbered or utilized for the purposes other than those for which the grant was given, without proper sanction of the UGC and should, at any time the college ceased to function, such assets shall revert to the UGC.
7. The Principal investigator of the project is required to submit the First year progress report of the work done along with the documents 1) Annual Report of the Project as per Annexure-III 2) Utilization Certificate duly signed by the Principal Investigator, Principal & Chartered Accountant 3) Statement of Expenditure

for the approved heads for the sanctioned amount as per Annexure-V duly signed by the Principal Investigator, Principal & Chartered Accountant.

8. The interest earned by the College / Institute on this grants-in-aid shall be treated as additional grant which may be shown in the Utilization Certificate / Statement of Expenditure to furnished by the grantee institution.

MRP-5365/14

9. **The college has to send the filled in Acceptance certificate within 15 days of receipt of this letter, else the college may return back the sanctioned amount to this office. Further if the conditions of the acceptance letter is not acceptable or applicable to the P.I/College, the sanctioned amount be refunded back to SERO-UGC, Hyderabad.**
13. The guidelines of Minor Research Project have to be followed in toto.
14. The Grant is subject to the adjustment on the basis of Utilization Certificate I the prescribed proforma submitted by the University/Institution.
15. The University/Institution shall maintain proper accounts of the expenditure out of the Grants, which shall be utilized, only on the approved items of expenditure.
16. The Utilization Certificate to the effect that the grant has been utilized for the purpose for which it has been sanctioned shall be furnished to UGC as early as possible after the close of current financial year.
17. The college shall maintain a Register of Assets acquired wholly or substantially out of the grant in the prescribed proforma.
18. The College shall fully implement to Official languages Policy of Union Govt. and comply with the Official Language Act, 1963 and Official languages (use for official purposes of the Union) Rules, 1976 etc.,
19. The sanction issues in exercise of the delegation of powers vide Commission Office Order No. 130/2013 [F.No: 10—11/12 (Admn.I/ A& B) Dated 28.05.2013.

Yours faithfully.

O/c

(Dr.G.Srinivas)
Joint Secretary

Copy to:

1. The Principal (Along with DD / Funds transferred through E-mode)
   SADAKATHULLAH APPA COLLEGE
   RAHMATH NAGAR, TIRUNELVELI -627011
2. MRS. FIRTHOUS FATIMA
   Dept. of MATHEMATICS
   SADAKATHULLAH APPA COLLEGE
   RAHMATH NAGAR, TIRUNELVELI -627011
3. The Dean/Director, College Development Council of affiliating University
4. The Commissioner /Director Collegiate Education, Government of TAMIL NADU
5. The Principal Accounts General (A & E)- Government of TAMIL NADU

O/c

(Vamsika C)
Education Officer

Gar Cap Sl No.752./2013-2014 Gar GIA Sl.No.885./2013-2014

Details of Payment by RTGS/NEFT to the College

The sanctioned grant of ***Rs. 175000.*** has been transferred to your college Account No **29981010026S3** at Bank **CB. *RAHMATH NAGAR BRANCH, TIRUNELVELI*** with IFS Code:CNRB0002998 through RTGS/Direct Credit (CBS to CBS). The Canara Bank, Abids, Hyderabad (CNRB 000 0606) has confirmed the above transfer of funds to your college through RTGS/Direct Credit transaction vide UTR confirmation No._____Dated_____

Your are requested to confirm the receipt of the above amount in your account by sending back the enclosed stamped receipt with in 7 days.

O/c

(R.Rayappa)
Accounts Officer

UNIVERSITY GRANTS COMMISSIONS -SOUTH EASTERN REGIONAL OFFICE
5-9-194, CHIRAG ALI LANE, IV FLOOR, A.P.S.F.C. BUILDING, HYDERABAD -500 001
Phones: 040 - 23204735, 23200208 FAX: 040 – 23204734, Website: www.ugc.ac.in, email: ugcsero@gmail.com

No.F MRP-5366/14 (SERO/UGC) March 2014

The Accounts Officer
UGC-SERO, Hyderabad

Comcode: TNMS024

Category: OBC

Sub: Release of Grants-in-aid to Minor Research Projects for the year 2013-2014 .

Sir / Madam,

The has reference to the Minor Research Project proposal submitted by MRS HIMAYA JALEELA BEGUM.M Department of MATHEMATICS of SADAKATHULLAH APPA COLLEGE RAHMATH NAGAR TIRUNELVELI entitled **"A STUDY ON T-FUZZY BI-IDEALS OF NEAR RING "**. The subject expert, who evaluated the proposal, has recommended for financial assistance as detailed below.

Sl. No	Item	Amount Allocated (Rs.)	Amount Sanctioned as first installment (Rs.)
1.	Books & Journals	50000.	50000.
2.	Equipment	85000.	85000.
	Total	135000.	135000.
3.	Field work & Travel	30000.	15000.
4.	Chemical & Glass Ware	0 0	0 0
5.	Contingency (incl. Special Needs)	30000.	15000.
6.	Hiring Services	0 0	0 0
	Total	60000.	30000.
	Grand Total	195000.	165000.

1. I am further to convey the sanction of the University Grants Commission to the payment of Rs.**165000.** to the principal, SADAKATHULLAH APPA COLLEGE,RAHMATH NAGAR,TIRUNELVELI as first installment (100% Non-Recurring and 50% Recurring grants) towards the above project.

GRANTS IN AID (31)

Amount Sanctioned	SC (15%) 2D(i)	ST (7.5%) 2D(ii)	General (77.5%) 5(Viii)
Rs.135000./-	Rs.20250. /-	Rs10125./-	Rs.104625.

CAPITAL (35)

Amount Sanctioned	SC (15%) 2D(i)	ST (7.5%) 2D(ii)	General (77.5%) 5(Viii)
Rs.30000./-	Rs4500. /-	Rs2250./-	Rs.23250./-

2. The above approval is subject to the general conditions **of grants prescribed by the UGC for this scheme.**
3. The amount of the grant shall be drawn by the Accounts Officer, SERO-UGC, Hyderabad and on the Grants-in-Aid bill and shall be disbursed to and credited to the Principal of the College ***through Electronic mode. The sanction is valid for payment for the year 2013-2014.***
4. **In case the Principal investigator is having ongoing Major/Minor Research Project OR has been transferred/left/retired from the college, the released amount may be returned to UGC-SERO, Hyderabad immediately**.
5. The grantee institution shall ensure the utilization of grants –in-aid for which it is being sanctioned/paid. in case of non-utilization /part utilization, **interest @ 10% per annum** as amended from time to time on utilized amount from the date of drawl to the date of refund as per provision contained in General Financial Rules of Govt. of India will be charged.
6. The assets acquired wholly or substantially out of UGC's grants shall not be disposed or encumbered or utilized for the purposes other than those for which the grant was given, without proper sanction of the UGC and should, at any time the college ceased to function, such assets shall revert to the UGC.
7. The Principal investigator of the project is required to submit the First year progress report of the work done along with the documents 1) Annual Report of the Project as per Annexure-III 2) Utilization Certificate duly signed by the Principal Investigator, Principal & Chartered Accountant 3) Statement of Expenditure

for the approved heads for the sanctioned amount as per Annexure-V duly signed by the Principal Investigator, Principal & Chartered Accountant.

8. The interest earned by the College / Institute on this grants-in-aid shall be treated as additional grant which may be shown in the Utilization Certificate / Statement of Expenditure to furnished by the grantee institution.

MRP-5366/14

9. **The college has to send the filled in Acceptance certificate within 15 days of receipt of this letter, else the college may return back the sanctioned amount to this office. Further if the conditions of the acceptance letter is not acceptable or applicable to the P.I/College, the sanctioned amount be refunded back to SERO-UGC, Hyderabad.**

13. The guidelines of Minor Research Project have to be followed in toto.
14. The Grant is subject to the adjustment on the basis of Utilization Certificate I the prescribed proforma submitted by the University/Institution.
15. The University/Institution shall maintain proper accounts of the expenditure out of the Grants, which shall be utilized, only on the approved items of expenditure.
16. The Utilization Certificate to the effect that the grant has been utilized for the purpose for which it has been sanctioned shall be furnished to UGC as early as possible after the close of current financial year.
17. The college shall maintain a Register of Assets acquired wholly or substantially out of the grant in the prescribed proforma.
18. The College shall fully implement to Official languages Policy of Union Govt. and comply with the Official Language Act, 1963 and Official languages (use for official purposes of the Union) Rules, 1976 etc.,
19. The sanction issues in exercise of the delegation of powers vide Commission Office Order No. 130/2013 [F.No: 10—11/12 (Admn.I/ A& B) Dated 28.05.2013.

Yours faithfully,

O/c

(Dr.G.Srinivas)
Joint Secretary

Copy to:

1. The Principal (Along with DD / Funds transferred through E-mode)
   SADAKATHULLAH APPA COLLEGE
   RAHMATH NAGAR, TIRUNELVELI -627011
2. MRS. HIMAYA JALEELA BEGUM.M
   Dept. of MATHEMATICS
   SADAKATHULLAH APPA COLLEGE
   RAHMATH NAGAR, TIRUNELVELI -627011
3. The Dean/Director, College Development Council of affiliating University
4. The Commissioner /Director Collegiate Education, Government of TAMIL NADU
5. The Principal Accounts General (A & E)- Government of TAMIL NADU

O/c

(Vamsika C)
Education Officer

Gar Cap.Sl.No.753./2013-2014 Gar GIA Sl.No.886./2013-2014

Details of Payment by RTGS/NEFT to the College

The sanctioned grant of ***Rs. 165000.*** has been transferred to your college Account No **2998101002653** at Bank **CB. *RAHMATH NAGAR BRANCH, TIRUNELVELI*** with IFS Code:CNRB0002998 through RTGS/Direct Credit (CBS to CBS). The Canara Bank, Abids, Hyderabad (CNRB 000 0606) has confirmed the above transfer of funds to your college through RTGS/Direct Credit transaction vide UTR confirmation No._____Dated_____

Your are requested to confirm the receipt of the above amount in your account by sending back the enclosed stamped receipt with in 7 days.

O/c

(R.Rayappa)
Accounts Officer

UNIVERSITY GRANTS COMMISSIONS -SOUTH EASTERN REGIONAL OFFICE
5-9-194, CHIRAG ALI LANE, IV FLOOR, A.P.S.F.C. BUILDING, HYDERABAD -500 001
Phones: 040 - 23204735, 23200208 FAX: 040 – 23204734, Website: www.ugc.ac.in, email: ugcsero@gmail.com

No.F MRP-5367/14 (SERO/UGC) **March 2014**

The Accounts Officer
UGC-SERO, Hyderabad

Comcode: TNMS024

Category: OBC

Sub: Release of Grants-in-aid to Minor Research Projects for the year 2013-2014 .

Sir / Madam,

The has reference to the Minor Research Project proposal submitted by MRS SYED ALI FATHIMA.S Department of MATHEMATICS of SADAKATHULLAH APPA COLLEGE RAHMATH NAGAR TIRUNELVELI entitled **"A STUDY ON GENERALIZED CLOSED SETS IN GENERALIZED TOPOLOGICAL SPACE "**. The subject expert, who evaluated the proposal, has recommended for financial assistance as detailed below.

Sl. No	Item	Amount Allocated (Rs.)	Amount Sanctioned as first installment (Rs.)
1.	Books & Journals	50000.	50000.
2.	Equipment	85000.	85000.
	Total	135000.	135000.
3.	Field work & Travel	30000.	15000.
4.	Chemical & Glass Ware	0 0	0 0
5.	Contingency (incl. Special Needs)	25000.	12500.
6.	Hiring Services	0 0	0 0
	Total	55000.	27500.
	Grand Total	190000.	162500.

1. I am further to convey the sanction of the University Grants Commission to the payment of Rs.**162500.** to the principal, SADAKATHULLAH APPA COLLEGE,RAHMATH NAGAR,TIRUNELVELI as first installment (100% Non-Recurring and 50% Recurring grants) towards the above project.

GRANTS IN AID (31)

Amount Sanctioned	SC (15%) 2D(i)	ST (7.5%) 2D(ii)	General (77.5%) 5(Viii)
Rs.135000./-	Rs.20250. /-	Rs10125./-	Rs.104625.

CAPITAL (35)

Amount Sanctioned	SC (15%) 2D(i)	ST (7.5%) 2D(ii)	General (77.5%) 5(Viii)
Rs.27500./-	Rs4125. /-	Rs2063./-	Rs.21312./-

2. The above approval is subject to **the general conditions of grants prescribed by the UGC for this scheme.**
3. The amount of the grant shall be drawn by the Accounts Officer, SERO-UGC, Hyderabad and on the Grants-in-Aid bill and shall be disbursed to and credited to the Principal of the College ***through Electronic mode. The sanction is valid for payment for the year 2013-2014.***
4. **In case the Principal investigator is having ongoing Major/Minor Research Project OR has been transferred/left/retired from the college, the released amount may be returned to UGC-SERO, Hyderabad immediately.**
5. The grantee institution shall ensure the utilization of grants –in-aid for which it is being sanctioned/paid. in case of non-utilization /part utilization, **interest @ 10% per annum** as amended from time to time on utilized amount from the date of drawl to the date of refund as per provision contained in General Financial Rules of Govt. of India will be charged.
6. The assets acquired wholly or substantially out of UGC's grants shall not be disposed or encumbered or utilized for the purposes other than those for which the grant was given, without proper sanction of the UGC and should, at any time the college ceased to function, such assets shall revert to the UGC.
7. The Principal investigator of the project is required to submit the First year progress report of the work done along with the documents 1) Annual Report of the Project as per Annexure-III 2) Utilization Certificate duly signed by the Principal Investigator, Principal & Chartered Accountant 3) Statement of Expenditure

for the approved heads for the sanctioned amount as per Annexure-V duly signed by the Principal Investigator, Principal & Chartered Accountant.

8. The interest earned by the College / Institute on this grants-in-aid shall be treated as additional grant which may be shown in the Utilization Certificate / Statement of Expenditure to furnished by the grantee institution. MRP-5367/14
9. **The college has to send the filled in Acceptance certificate within 15 days of receipt of this letter, else the college may return back the sanctioned amount to this office. Further if the conditions of the acceptance letter is not acceptable or applicable to the P.I/College, the sanctioned amount be refunded back to SERO-UGC, Hyderabad.**
13. The guidelines of Minor Research Project have to be followed in toto.
14. The Grant is subject to the adjustment on the basis of Utilization Certificate I the prescribed proforma submitted by the University/Institution.
15. The University/Institution shall maintain proper accounts of the expenditure out of the Grants, which shall be utilized, only on the approved items of expenditure.
16. The Utilization Certificate to the effect that the grant has been utilized for the purpose for which it has been sanctioned shall be furnished to UGC as early as possible after the close of current financial year.
17. The college shall maintain a Register of Assets acquired wholly or substantially out of the grant in the prescribed proforma.
18. The College shall fully implement to Official languages Policy of Union Govt. and comply with the Official Language Act, 1963 and Official languages (use for official purposes of the Union) Rules, 1976 etc.,
19. The sanction issues in exercise of the delegation of powers vide Commission Office Order No. 130/2013 [F.No: 10—11/12 (Admn.I/ A& B) Dated 28.05.2013.

Yours faithfully,

O/c

(Dr.G.Srinivas)
Joint Secretary

Copy to:

1. The Principal (Along with DD / Funds transferred through E-mode)
   SADAKATHULLAH APPA COLLEGE
   RAHMATH NAGAR, TIRUNELVELI -627011
2. MRS. SYED ALI FATHIMA.S
   Dept. of MATHEMATICS
   SADAKATHULLAH APPA COLLEGE
   RAHMATH NAGAR, TIRUNELVELI -627011
3. The Dean/Director, College Development Council of affiliating University
4. The Commissioner /Director Collegiate Education, Government of TAMIL NADU
5. The Principal Accounts General (A & E)- Government of TAMIL NADU

O/c

(Vamsika C)
Education Officer

Gar Cap.Sl.No.754./2013-2014 Gar GIA Sl.No.887./2013-2014

Details of Payment by RTGS/NEFT to the College

The sanctioned grant of ***Rs. 162500.*** has been transferred to your college Account No **2998101002653** at Bank **CB, *RAHMATH NAGAR BRANCH, TIRUNELVELI*** with IFS Code:CNRB0002998 through RTGS/Direct Credit (CBS to CBS). The Canara Bank, Abids, Hyderabad (CNRB 000 0606) has confirmed the above transfer of funds to your college through RTGS/Direct Credit transaction vide UTR confirmation No._____Dated_____

Your are requested to confirm the receipt of the above amount in your account by sending back the enclosed stamped receipt with in 7 days.

O/c

(R.Rayappa)
Accounts Officer

A Study on Bi Near Subtraction Semigroups

(No.F.MRP- 5365/14 (SERO/UGC))

Final Report

(April 2014 – March 2016)

University Grants Commission

U.G.C. Minor Research Project

By

Mrs. S. Firthous Fatima., M.Sc., M.Phil.,

Assistant Professor of Mathematics

Principal Investigator

Sadakathullah Appa College (Autonomous)

Tirunelveli – 627 011

Tamil Nadu

From

S. Firthous Fatima,
Assistant Professor of Mathematics,
Sadakathullah Appa College,
Tirunelveli – 627 011,
Tamil Nadu.

To

The Under Secretary,
University Grants Commission,
South-Eastern Regional Office,
A.P.S.F.C.Building - IV Floor -5-9-194
PB No.152, Chirag Ali Lane,
Hyderabad – 500001 (A.P).

Through

The Principal,
Sadakathullah Appa College,
Tirunelveli-11.

Respected Sir,

Sub: Submission of Final report of the work done on the Minor Research Project-reg.

Ref.: F. MRP-5365/14(SERO/UGC)

I have enclosed the Final report of the work done on the Minor Research Project and the abstract of the detailed total expenditure incurred on each approved head for the Minor Research Project entitled as "A study on Bi Near Subtraction Semigroups" under the UGC Scheme of financial assistance to College teachers for your kind perusal.

Thanking you,

Yours faithfully,

S. Firthous Fatima

(S. Firthous Fatima)

Tirunelveli-11

31.10.2016

Encl.: 1. Final report.
2. Utilization Certificate.
3. Statement of Expenditure for the sanctioned amount.
4. Project completion Report (Book Binding Manner)
5. Accession Certificate for Books and Asset Certificate for the Equipments Purchased.

Forwarded

(Principal)

Annexure -VI

UNIVERSITY GRANTS COMMISSION
BAHADUR SHAH ZAFAR MARG
NEW DELHI – 110 002.

Annual/Final Report of the work done on the Minor Research Project.
(Report to be submitted within 6 weeks after completion of each year)

1. **Project report No. 1st/Final** : Final
2. **UGC Reference No.** : F. MRP-5365/14(SERO/UGC)
3. **Period of report** : From 08-04-2014 to 07-04-2016
4. **Title of research project** : A study on Bi Near Subtractions Semigroups
5. **(a) Name of the Principal Investigator** : S. Firthous Fatima
   (b) Deptt. : Mathematics
   (c) College where work has progressed :Sadakathuallah Appa College(Autonomous)
6. **Effective date of starting of the project** :08-04-2014
7. **Grant approved and expenditure incurred during the period of the report:**

a. **Total amount approved** : Rs. 2,05,000/-

. **Total Expenditure** : Rs. 205915

Report of the work done:

i. Brief objective of the project:

1. I propose to study of F-Bi near subtraction semigroups
2. I propose to study of F^*-Bi near subtraction semigroups

8. Work done so far and results achieved and publications, if any, resulting from the work

Twentieth century mathematics has already started revealing the discipline of mathematics as representing the ultimate in abstraction, formulation and analytic creativity. The natural appeal of "Abstract Algebra" and the importance of its impact on almost all branches of study have given rise to newer and diverse abstract systems which have led to creation of storage vistas. I have dealt with the survey of literature, related to the theory of near subtraction semigroups. I have collected all basic concepts and results- mostly from Pillz which are required for my work in subsequent chapters. I have worked on F-bi near subtraction semigroup without non-zero zero-divisors is sub directly irreducible.. The results of **F-bi near subtraction semigroup** and published a paper entitled as **International Research Journal of Pure Algebra [IRJPA]** -5(8), 2015, 122-125 ISSN 2248–9037.Then I have focused my attention on our generalized case and published a paper entitled as **F*-bi near subtraction semigroup** published in International Journal of Mathematics Research. **[IJMR]** ISSN 0976-5840 Volume 7, Number 2 (2015), pp. 135-139 © International Research Publication House. Finally, a new article entitled as **K and K*-bi near subtraction semigroup** and published in International Journal of Mathematical Archive **[IJMA]** -6(9), 2015, 1-4 ISSN 2229 – 5046.

Papers Published:

[1] S.Firthous Fatima and S.Jayalakshmi, F-Bi Near Subtraction semigroup, International Research Journal of Pure Algebra **[IRJPA]** -5(8), 2015, 122-125 ISSN 2248–9037.

[2] S.Firthous Fatima and S.Jayalakshmi, F*-Bi Near Subtraction semigroup, International Journal of Mathematics Research. **[IJMR]** ISSN 0976-5840 Volume 7, Number 2 (2015), pp. 135-139 © International Research Publication House.

[3] S.Firthous Fatima and S.Jayalakshmi, K and K*-Bi Near Subtraction semigroup, International Journal of Mathematical Archive **[IJMA]** -6(9), 2015, 1-4 ISSN 2229 – 5046..

iii. Has the progress been according to original plan of work and towards achieving the objective : YES

iv. Please enclose a summary of the findings of the study One bound copy of the final report of work done may also be sent to the concerned Regional Office of the UGC.
- One bound copy of the final report of work done is enclosed–

v. Any other information: Nil

S. Firthous Fatima

SIGNATURE OF THE PRINCIPAL INVESTIGATOR

PRINCIPAL
PRINCIPAL
SADAKATHULLAH APPA COLLEGE
(AUTONOMOUS)
RAHMATH NAGAR, TIRUNELVELI - 11.

(Seal)

ज्ञान-विज्ञान विमुक्तये

UNIVERSITY GRANTS COMMISSION BAHDUR SHAH ZAFAR MARG
NEW DELHI – 110 002

Utilization certificate

Certified that the grant of **Rs. 2,05000 / -** (Rupees Two lakh five thousand only) sanctioned by the University Grants Commission under the scheme of support for Minor Research Project entitled "**A Study on Bi-Near subtraction Semigroups**" vide UGC letter No. **F. MRP – 5365 / 14 (SERO/UGC)** dated **08.04.2014** has been fully utilized for the purpose for which it was sanctioned and in accordance with the terms and conditions laid down by the University Grants Commission.

S. Firthous Fatima

SIGNATURE OF THE PRINCIPAL INVESTIGATOR

(Seal)

PRINCIPAL

PRINCIPAL
SADAKATHULLAH APPA COLLEGE
(AUTONOMOUS)
RAHMATH NAGAR, TIRUNELVELI - 11.

(Seal)

S. Firthous Fatima,
Assistant Professor of Mathematics
Sadakathullah Appa College (Aut.)
Rahmath Nagar, Tirunelveli - 627 011.

S. B...

STAUTORY AUDITOR

Balasubramanian Sudalai & Co.,
S. Balasubramanian F.C.A.
M.No. 221071
FRN. 014407S
Chartered Accountant
Tirunelveli -2

Detailed Statement of Expenditure Incurred on the Minor Research Project
For the Period: From April 2014 to March 2016

Name of the P.I. : S. Firthous Fatima

Department : Mathematics

University/College : Sadakathullah Appa College, Tirunelveli-11.

Title of the Project : A study on Bi near subtraction semigroups

File No. : No.F.MRP- 5365/14 (SERO/UGC)

Item of Expenditure	Total Grant Approved (in Rs.)	Grant Received as I installment (in Rs.)	Grant Received as II installment (in Rs.)	Actual Grant Spent	Balance	Remark
Non Recurring						
1.Equipment	85000	85000	Nil	85000	Nil	
2.Books and Journals	60000	60000	Nil	60260	Nil	
Total	145000	145000	Nil	145260	Nil	
Recurring						
1.Travel and Field Work	30000	15000	Nil	30120	Nil	
2.Contingency	30000	15000	Nil	30535	Nil	
Total	60000	30000	Nil	60655	Nil	
Grand Total	2.05000	175000	Nil	205915	Nil	

CERTIFICATE:

Certified that the above grant has been utilized for the purpose for which it was sanctioned and in accordance with the terms and conditions attached to the grant.

If as a result of a check on audit object, some irregularity is noticed at a later stage, action will be taken refund, adjust of regularize the objected amount.

S. Firthous Fatima

Principal Investigator
S. Firthous Fatima,
Assistant Professor of Mathematics,
Sadakathullah Appa College (Autonomous),
Rahmath Nagar, Tirunelveli - 627 011.

Principal
PRINCIPAL
SADAKATHULLAH APPA COLLEGE
(AUTONOMOUS)
RAHMATH NAGAR, TIRUNELVELI - 11.

S. Balasubramanian

Chartered Accountant

Balasubramanian Sudalai & Co.,
S. Balasubramanian F.C.A.
M.No. 221071
FRN. 014407S
Chartered Accountant
Tirunelveli -2

A STUDY ON T-FUZZY BI-IDEALS OF NEAR RINGS

[No.F.MRP- 5366/14 (SERO/UGC)]

FINAL REPORT

(APRIL 2014 – MARCH 2016)

ज्ञान-विज्ञान विमुक्तये

University Grants Commission

U.G.C. MINOR RESEARCH PROJECT

By

Mrs. M. HIMAYA JALEELA BEGUM, M.Sc., M.Phil.,

Assistant Professor of Mathematics

Principal Investigator

SADAKATHULLAH APPA COLLEGE (AUTONOMOUS)

TIRUNELVELI – 627 011

TAMIL NADU

From

M. Himaya Jaleela Begum,
Assistant Professor of Mathematics,
Sadakathullah Appa College,
Tirunelveli – 627 011,
Tamil Nadu.

To

The Under Secretary,
University Grants Commission,
South-Eastern Regional Office,
A.P.S.F.C.Building - IV Floor -5-9-194
PB No.152, Chirag Ali Lane,
Hyderabad – 500001 (A.P).

Through

The Principal,
Sadakathullah Appa College,
Tirunelveli-11.

Respected Sir,

Sub: Submission of Final report of the work done on the Minor Research Project-reg.

Ref.: F. MRP-5366/14(SERO/UGC)

I have enclosed the Final report of the work done on the Minor Research Project and the abstract of the detailed total expenditure incurred on each approved head for the Minor Research Project entitled as "A study on T-fuzzy bi-ideals of Near-ring" under the UGC Scheme of financial assistance to college teachers for your kind perusal.

Thanking you,

Yours faithfully,

M. Himaya Jaleela Begum

(M. Himaya Jaleela Begum)

Tirunelveli-11

31.10.2016

Encl.: 1. Final report.
2. Utilization Certificate.
3. Statement of Expenditure for the sanctioned amount.
4. Project completion Report (Book Binding Manner)
5. Accession Certificate for Books and Asset Certificate for the Equipments Purchased.

Forwarded

(Principal)

Annexure -VI

UNIVERSITY GRANTS COMMISSION
BAHADUR SHAH ZAFAR MARG
NEW DELHI – 110 002.

Annual/Final Report of the work done on the Minor Research Project.
(Report to be submitted within 6 weeks after completion of each year)

1. Project report No. 1st/Final : Final

2. UGC Reference No. : F. MRP-5366/14(SERO/UGC)

3. Period of report : From 08-04-2014 to 07-04-2016

4. Title of research project : A study on T-fuzzy Bi-ideals of Near-ring

5. (a) Name of the Principal Investigator : M. Himaya Jaleela Begum
(b) Deptt. : Mathematics

(c) College where work has progressed : Sadakathuallah Appa College(Autonomous)

6. Effective date of starting of the project : 08-04-2014

7. Grant approved and expenditure incurred during the period of the report:

a. Total amount approved : Rs. 1,95,000/-

b. Total Expenditure : Rs. 1,96,241 /-

c. Report of the work done:

i. **Brief objective of the project:**

1. I propose to study of fuzzy bi-ideals in near-rings with respect to t-norm T.
2. I propose to investigate some of their properties.

ii. **Work done so far and results achieved and publications, if any, resulting from the work:**

Generally physical construct are described by Mathematical systems which are over idealization in a fundamental sense. In abstract system often quantities and concepts which are inherently imprecise in the real situation are translated into precise terms. However in recent years Mathematicians strive their best to generalize the axiomatic systems and to introduce the theory of uncertainty in various physical schemes.The theory of fuzzy set was first inspired by

Zadeh. In this area I have worked on fuzzy bi-ideals and T-fuzzy bi-ideals concepts and published a paper entitled *" On T-fuzzy bi-ideals of near-rings with respect to t-norm" in the International Research Journal of Pure Algebra-5(8), 2015,118-121.*

I have introduced a new concept of T-fuzzy bi-ideals and (λ, μ)-fuzzy bi-ideals in near-rings with respect to t-norm. For the aim of further studying ,I have visited various universities and Mathematical institutions to collect necessary materials related to my topic. After careful study I have communicated an article entitled *" On T-fuzzy bi-ideals and (λ, μ)-fuzzy bi-ideals in near-rings with respect to t-norm". This article is published in International Journal of Mathematical Archieve-7(3), 2016, 76-82.*

Papers published:

1.M. Himaya Jaleela Begum and S.Jayalakshmi , *On T-fuzzy bi-ideals in near-rings with respect to t-norm* , International Research Journal of Pure Algebra-5(8), 2015,118-121.

2. .M. Himaya Jaleela Begum and S.Jayalakshmi , *On T-fuzzy bi-ideals and (λ, μ)-fuzzy bi-ideals in near-rings with respect to t-norm* , International Journal of Mathematical Archieve-7(3), 2016, 76-82.

iii. **Has the progress been according to original plan of work and towards achieving the objective:** YES

iv. **Please enclose a summary of the findings of the study. One bound copy of the final report of work done may also be sent to the concerned Regional Office of the UGC.**

-One bound copy of the Final project report is Enclosed-

v. **Any other information:** Nil

M. Himaya Jaleela Begum

SIGNATURE OF THE PRINCIPAL INVESTIGATOR

PRINCIPAL

PRINCIPAL
SADAKATHULLAH APPA COLLEGE
(AUTONOMOUS)
RAHMATH NAGAR, TIRUNELVELI - 11.

(Seal)

ज्ञान-विज्ञान विमुक्तये

UNIVERSITY GRANTS COMMISSION BAHDUR SHAH ZAFAR MARG
NEW DELHI – 110 002

Utilization certificate

Certified that the grant of Rs. 1,95,000/- (Rupees One Lakh ninety five thousands only) as I installment received from the University Grants Commission under the scheme of support for Minor Research Project entitled "A Study on T_Fuzzy Bi-Ideals of Near Rings " vide UGC letter No.F.MRP – 5366/14 (SERO/UGC) dated 08.04.14 has been fully utilized for the purpose for which it was sanctioned and in accordance with the terms and conditions laid down by the University Grants Commission.

M. Himaya Jaleela Begum
SIGNATURE OF THE PRINCIPAL INVESTIGATOR

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S. Balasubramanian F.C.A.
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M.No. 221071
FRN. 014407S
Chartered Accountant
Tirunelveli -2

5

Detailed Statement of Expenditure Incurred on the Minor Research Project (For the one year Project Period)

For the Period: From April 2014 to March 2016

Name of the P.I. : M. Himaya Jaleela Begum

Department : Mathematics

University/College : Sadakathullah Appa College, Tirunelveli-11.

Title of the Project : A study on T-Fuzzy Bi-ideals of Near-Rings.

File No. : No.F.MRP- 5366/14 (SERO/UGC)

Item of Expenditure	Total Grant Approved (in Rs.)	Grant Received as I installment (in Rs.)	Grant Received as II installment (in Rs.)	Actual Grant Spent	Balance	Remark
Non Recurring						
1.Equipment	85000	85000	Nil	85000	Nil	---
2.Books and Journals	50000	50000	Nil	50260	Nil	---
Total	135000	135000	Nil	135260	Nil	---
Recurring						
1.Travel and Field Work	30000	15000	Nil	30150	Nil	---
2.Contingency	30000	15000	Nil	30831	Nil	---
Total	60000	30000	Nil	60981	Nil	---
Grand Total	195000	165000	Nil	196241	Nil	---

CERTIFICATE:

Certified that the above grant has been utilized for the purpose for which it was sanctioned and in accordance with the terms and conditions attached to the grant.

If as a result of a check on audit object, some irregularity is noticed at a later stage, action will be taken refund, adjust of regularize the objected amount.

M. Himaya Jaleela Begum

Principal Investigator

M. Himaya Jaleela Begum
Assistant Professor of Mathematics,
Sadakathullah Appa College (Autonomous),
Rahmath Nagar, Tirunelveli - 627 011.

Principal

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S. Balasubramanian

Chartered Accountant

Balasubramanian Sudalai & Co.,
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FRN. 014407S
Chartered Accountant
Tirunelveli-2

A Study on Generclized closed sets in Generalized Topological Spaces

[No.F.MRP- 5367/14 (SERO/UGC)]

Final Report

(April 2014 – March 2016)

University Grants Commission

U.G.C. MINOR RESEARCH PROJECT

By

Mrs. S.SYED ALI FATHIMA, M.Sc., M.Phil.,

Assistant Professor of Mathematics
Principal Investigator

SADAKATHULLAH APPA COLLEGE (AUTONOMOUS)
TIRUNELVELI – 627 011
TAMIL NADU

From

S. Syed Ali Fathima,
Assistant Professor of Mathematics,
Sadakathullah Appa College,
Tirunelveli – 627 011,
Tamil Nadu.

To

The Under Secretary,
University Grants Commission,
South-Eastern Regional Office,
A.P.S.F.C.Building - IV Floor -5-9-194
PB No.152, Chirag Ali Lane,
Hyderabad – 500001 (A.P).

Through

The Principal,
Sadakathullah Appa College,
Tirunelveli-11.

Respected Sir,

Sub: Submission of Final report of the work done on the Minor Research Project-reg.

Ref.: F. MRP-5367/14(SERO/UGC)

I have enclosed the Final report of the work done on the Minor Research Project and the abstract of the detailed total expenditure incurred on each approved head for the Minor Research Project entitled as "A study on generalized closed sets in generalized topological spaces" under the UGC Scheme of financial assistance to college teachers for your kind perusal.

Thanking you,

Yours faithfully,

S. Syed Ali Fathima

(S. Syed Ali Fathima)

Tirunelveli-11

31.10.2016

Encl.: 1. Final report.
2. Utilization Certificate.
3. Statement of Expenditure for the sanctioned amount.
4. Project completion Report (Book Binding Manner)
5. Accession Certificate for Books and Asset Certificate for the Equipments Purchased.

Forwarded

(Principal)

Annexure -VI

UNIVERSITY GRANTS COMMISSION
BAHADUR SHAH ZAFAR MARG
NEW DELHI – 110 002.

Annual/Final Report of the work done on the Minor Research Project.
(Report to be submitted within 6 weeks after completion of each year)

1. **Project report No. 1st/Final** : Final

2. **UGC Reference No.** : F. MRP-5367/14(SERO/UGC)

3. **Period of report** : From 08-04-2014 to 07-04-2016

4. **Title of research project** : A study on generalized closed sets in Generalized Topological spaces

5. **(a) Name of the Principal Investigator** : S. Syed Ali Fathima

   (b) Deptt. : Mathematics

   (c) College where work has progressed :Sadakathuallah Appa College(Autonomous)

6. **Effective date of starting of the project** :08-04-2014

7. **Grant approved and expenditure incurred during the period of the report:**

a. **Total amount approved** : Rs. 1,90,000/-

b. **Total Expenditure** : Rs. 1,91,561/-

c. **Report of the work done:**

i. **Brief objective of the project:**

1. I propose to study the weak form of g_μ closed set in generalized topological space.
2. I propose to characterization of new generalized closed sets
3. I propose to compare with other generalized closed sets of GTS.

ii. **Work done so far and results achieved and publications, if any, resulting from the work:**

In the last 30 years (or) so there has appeared an unusually rich flourishing of topology many fundamental problems of topology have been solved and new methods developed. It has become a powerful instrument of mathematical research. Topology, which until recently was a

conglomeration of loosely related theorems, became a systematic science and topological methods penetrated into many other domains of Mathematics.

This project addresses the challenges of new type of sets in a generalized topological space called weakly μg-closed (briefly wμg-closed) sets. The generality of topological methods rests on the generality of the sets. In this direction continuous map, irresolute map, closed maps and homeomorphisms are studied. Basic characterizations and several properties concerning them are obtained besides giving some counter examples. The results of weakly μg-closed sets have been published in "***Journal of Advanced Studies in Topology" volume 6:4(2015), 125-128.***

I have introduced the concept of $(\mu_1, w\mu g\_\mu_2)$ continuous functions, $(w\mu g\_\mu_1, \mu_2)$ continuous functions and wμg-irresolute function in GTS and investigated its properties and the relationships among existing continuities. Some counter examples are established to support the statement of the theorems. The results of the above said of continuous functions have been published in "***International Journal of Mathematical Archive" volume 7(4) (2016), 33-36.***

Finally I have prepared an article entitled "On Wμg- Regular Spaces and Wμg- Normal Spaces in generalized topological spaces". Here I have defined wμg-regular and wμg-normal spaces using wμg-closed sets and compared with μ-regular Space and μ-normal Space. This paper will be communicated to a journal shortly.

Papers Published

1. S. Syed Ali Fathima, ***On weakly μg-closed sets in generalized topological spaces***, Journal of Advanced Studies in Topology, volume 6:4(2015), 125-128.

2 S. Syed Ali Fathima, ***On weakly μg-continuous functions in generalized topological spaces***, International Journal of Mathematical Archive, volume 7(4) (2016), 33-36.

iii. **Has the progress been according to original plan of work and towards achieving the objective**: YES

iv. **Please enclose a summary of the findings of the study. One bound copy of the final report of work done may also be sent to the concerned Regional Office of the UGC.**
- One bound copy of the final project report enclosed–

v. **Any other information:** Nil

S. Syed Ali Fathima
SIGNATURE OF THE PRINCIPAL INVESTIGATOR

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PRINCIPAL
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(AUTONOMOUS)
RAHMATH NAGAR, TIRUNELVELI - 11.
(Seal)

UNIVERSITY GRANTS COMMISSION BAHDUR SHAH ZAFAR MARG
NEW DELHI – 110 002

Utilization certificate

Certified that the grant of Rs. 1, 90,000/- (Rupees One Lakh ninety thousand only) sanctioned by the University Grants Commission under the scheme of support for Minor Research Project entitled "A Study on generalized closed sets in generalized topological spaces" vide UGC letter No F MRP – 5367/14 (SERO/UGC) dated 08.04.14 has been fully utilized for the purpose for which it was sanctioned and in accordance with the terms and conditions laid down by the University Grants Commission.

S. Syed Ali Fathima

SIGNATURE OF THE PRINCIPAL INVESTIGATOR

PRINCIPAL

STATUTORY AUDITOR

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RAHMATH NAGAR, TIRUNELVELI - 11.

Detailed Statement of Expenditure Incurred on the Minor Research Project

For the Period: From April 2014 to March 2016

Name of the P.I. : S. Syed Ali Fathima

Department : Mathematics

University/College : Sadakathullah Appa College, Tirunelveli-11.

Title of the Project : A study on Generalized closed sets in Generalized Topological Space

File No. : No.F.MRP- 5367/14 (SERO/UGC)

Item of Expenditure	Total Grant Approved (in Rs.)	Grant Received as I installment (in Rs.)	Grant Received as II installment (in Rs.)	Actual Grant Spent	Balance	Remark
Non Recurring						
1.Equipment	85000	85000	Nil	85000	Nil	---
2.Books and Journals	50000	50000	Nil	50260	Nil	---
Total	135000	135000	Nil	135260	Nil	---
Recurring						
1.Travel and Field Work	30000	15000	Nil	30080	Nil	---
2.Contingency	25000	12500	Nil	26221	Nil	---
Total	55000	27500	Nil	56301	Nil	---
Grand Total	190000	162500	Nil	191561	Nil	---

CERTIFICATE:

Certified that the above grant has been utilized for the purpose for which it was sanctioned and in accordance with the terms and conditions attached to the grant.

If as a result of a check on audit object, some irregularity is noticed at a later stage, action will be taken refund, adjust of regularize the objected amount.

S. Syed Ali Fathima

Principal Investigator

S. Syed Ali Fathima
Assistant Professor of Mathematics,
Sadakathullah Appa College (Autonomous),
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Tirunelveli - 2

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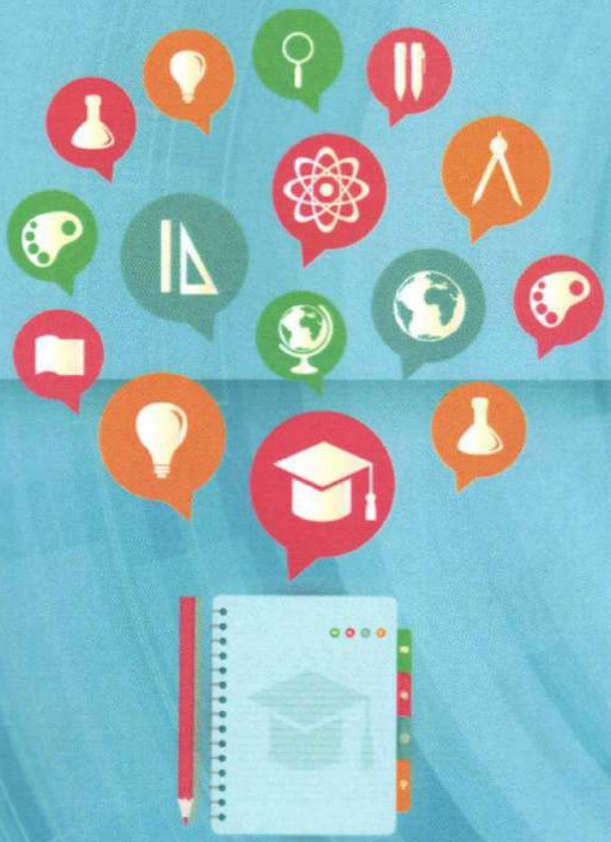
A Research Bulletin

UGC APPROVED JOURNAL NO. (64130). INDEXED IN GOOGLE SCHOLAR

Vol. V | No. 1 | July 2017



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Phone Number : 0462 - 2540763

Website : www.sadakath.ac.in

Anti Fuzzy Weak Bi-Ideals of Near-Rings

Dr. M. Himaya Jaleela Begum[1] and Dr. S. Syed Ali Fathima[2]

Abstract

In this paper, a definition has been given of a new notion of anti fuzzy weak bi-ideals of near-rings, which is a generalized concept of anti fuzzy bi-ideals of near-rings. Some of their related properties have also been investigated with exemples.

Keywords: *Near-rings, fuzzy weak bi-ideals, fuzzy bi-ideals, anti fuzzy bi-ideals , anti fuzzy weak bi-ideals.*

Introduction

L.A.Zadeh[6]initiated the concept of fuzzy sets in 1965. Abou-Zaid[1] first made the study of fuzzy subnear-rings and ideals of near-rings. The concept of bi-ideals was applied to near-rings in [4]. The idea of fuzzy ideals of near-rings was first proposed by kim et al.[3]. Yong Uk Cho et al.[5] introduced the concept of weak bi-ideals applied to near-rings. In this paper, we defined new a notion of anti fuzzy weak bi-ideals of near-rings, which is a generalized concept of anti fuzzy bi-ideals of near-rings. Some of their related properties with example, have also been investigated.

Preliminaries

Definition 2.1.A non empty set N with two binary operations "+"(addition) and "."(multiplication) is called a near-ring, if it satisfies the following conditions:

(i).(N,+) is a group (not necessarily abelian),

(ii).(N,.) is a semi group,

(iii). For all $x,y,z \in N$, $(x+y).z=x.z+y.z$.

Remark.2.2. Throughout this paper, by a near-ring, it means only a zero symmetric right near-ring. The symbol N stands for a near-ring (N,+,.) with atleast two elements. 0 denotes the identity element of the group (N,+).

Definition.2.3([4]). A subgroup B of N is said to be bi-ideal if $BNB \subseteq B$.

Definition.2.4([5]).A subgroup B of N is said to be weak bi-ideal if $BBB \subseteq B$.

Definition.2.5([6]). A mapping $\mu:X\rightarrow[0,1]$, where X is an arbitrary non-empty set and is called a fuzzy set in X.

---

1 Assistant Professor, Department of Mathematics, Sadakathullah Appa College (Autonomous), (Affiliated in Manonmaniam Sundaranar University, Tirunelveli), Rahmath Nagar, Tamil Nadu, India.

2 Assistant Professor, Department of Mathematics, Sadakathullah Appa College (Autonomous), (Affiliated in Manonmaniam Sundaranar University, Tirunelveli), Rahmath Nagar, Tamil Nadu, India.

VOLUME-6 | ISSUE-1 | JANUARY-2017 • ISSN No 2277 - 8179 | IF : 3.508 | IC Value : 78.46

Original Research Paper

Detour Dominating Algorithm and Applications.

Mathematics

KEYWORDS: Detour number ,Detour domination number, Detour Algorithm ,Dominating Algorithm, Detour Dominating Algorithm.

N.Arianayagam	Assistant Professor Department of Mathematics Government college of Engineering Tirunelveli-627007, India
J.Vijaya Xavier Parthipan	Associate Professor Department of Mathematics St.John's College Palayamkottai-627002,India
M.P. Syed Ali Nisaya	Assistant Professor Department of Mathematics(SF) Sadakathullah Appa College Tirunelveli-627011.India.

ABSTRACT

For vertices u and v in a connected graph G, the detour distance D (u,v) is the length of the longest u- v path in G. A u – v path of length D (u,v) is called a u – v detour. The detour distance is a metric on the vertex set V(G). Chart and et al introduced the concept of detour distance by considering the length of the longest path between the vertices uand v. The Detour set ,Dominating set and Detour Dominating set definition was given and used in image processing for image correction .Here the Detour, Dominating and Detour Dominating Algorithm was introduced and their applications are given.

Introduction

For a graph $G = (V, E)$ we mean a finite undirected graph without loops or multiple edges. The order and size of G Iare denoted by p and q respectively. We consider connected graphs with atleast two vertices. For basic definitions and terminologies we refer to [1, 4].

For vertices u and v in a connected graph G, the detour distance D (u,v) is the length of the longest u – v path in G. A u – v path of length D (u,v) is called a u – v detour. It is known that the detour distance is a metric on the vertex set V(G). The detour eccentricity $e_D(v)$ of a vertex v in G is the maximum detour distance from v to vertex of G. The detour radius, radDG of G is the minimum detour eccentricity among the vertices of G, while the detour diameter, diamDG of G is the maximum detour eccentricity among the vertices of G. These concept were studied by chartrand et al [2].A dominating set for a graph G = (V, E) is a subset S of V(G) such that every vertex not in S is adjacent to at least any one member of S. The **domination number** $\gamma(G)$ is the number of vertices in a smallest dominating set for G.A set $S \subseteq V(G)$ is called **a detour dominating set** of G, if S is a detour set and the **dominating** set of G.The **detour domination number** $\gamma_d(G)$ of G is the minimum order of its detour dominating sets and any detour dominating set of order $\gamma_d(G)$ is called a γ_d- set of G. Here we introduce the new Algorithms namely Detour Algorithm, Dominating Algorithm and also Detour Dominating Algorithm. And also we explain how the Detour Dominating concept used in the image processing in image correction.

1.DETOUR DOMINATING CONCEPT

In graph theory, for a graph G=(V,E),we mean a finite undirected graph without parallel edges or loops.The order and size of G are denoted by p and q respectively. We consider connected graph atleast two vertices. For vertices u and w in a connected graph G, the detour distance D(v,w) is the length of the longest v-w path in G. A v-w path of length D(v,w) is called a v-w detour.A detour set $S \subseteq V(G)$ if every vertex in G lies on a detour joining a pair of vertices of S.

A **dominating** set for a graph G = (V, E) is a subset S of V(G) such that every vertex not in S is adjacent to at least any one member of S. The **domination number** $\gamma(G)$ is the number of vertices in a smallest dominating set for G.

A set $S \subseteq V(G)$ is called a detour dominating set of G, if S is a detour set and the dominating set of G.The detour domination number $\gamma_{\_d}(G)$ of G is the minimum order of its detour dominating sets and any detour dominating set of order $\gamma_{\_d}(G)$ is called a $\gamma_{\_d}$- set of G.

2.ALGORITHMS

Algorithm: Detour_set

```
S={ }
for i = 1 to n-1
        for j = i+1 to n
        S_ij= set of all vertices of G contained in a detour joining
        S_DE(i) and S_DE(j)
        S = S U S_ij

        end for
end for
        if V(G)==S
        detour_set='yes'
        else
        detour_set='no'
        end if
end
```

Algorithm: Dominating_set

Input: A set of vertices $S_{DO}=\{v_1, v_2, ..., v_n\}$ of a graph G
Output: Yes or No

```
begin
        S={ }
        for i = 1 to n
                S_i= set of all vertices of G adjacent to S_DO(i)
                S = S U S_i
        end for
        if V(G)==S
                dominating_set='yes'
        else
                dominating_set='no'
        end if
end
```

Algorithm: Detour_Dominating_set

Input: A set of vertices $S_{DD}=\{v_1, v_2, ..., v_n\}$ of a graph G
Output: Yes or No

```
begin
        if detour_set(SDD)=='yes'
        &&dominating_set(SDD)=='yes'
                detour_dominating_set='yes'
        else
                detour_dominating_set='no'
        end if
end
```

3.APPLICATION OF DETOUR DOMINATING CONCEPT IN IMAGE PROCESSING

The **dominating set problem** concerns testing whether $(G) \leq K$ for

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UGC APPROVED JOURNAL NO. (64130). INDEXED IN GOOGLE SCHOLAR

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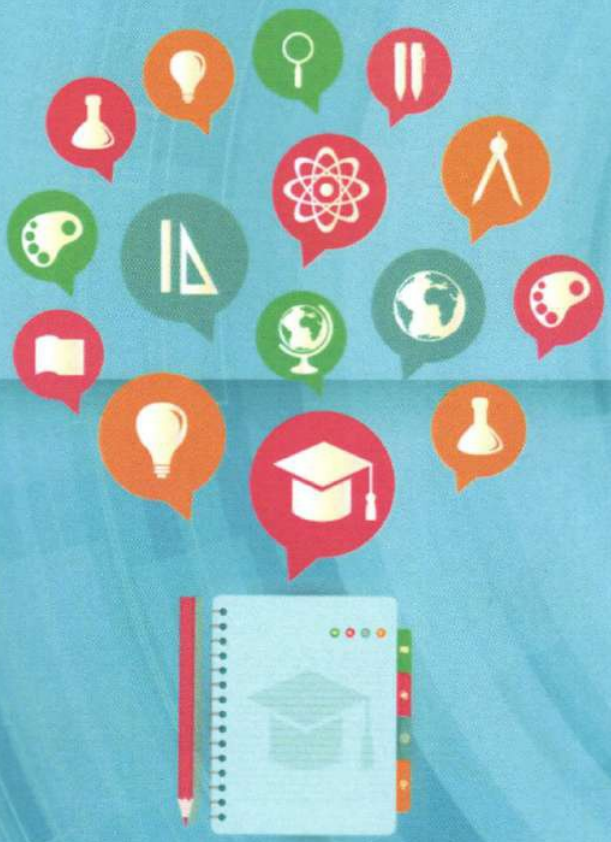

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Fibonacci Divisor Cordial Labeling for Some Graphs

Dr. N. Mohamed Rilwan[1] and A. Beema John[2]

Abstract

Let $G = (V, E)$ be a (p, q)-graph and a bijection $f: V(G) \to \{F_1, F_2, F_3, \ldots, F_p\}$, where F_i is the i^{th} fibonacci number. For each edge $uv \in E(G)$ assign the label 1 if either $f(u)$ divides $f(v)$ or $f(v)$ divides $f(u)$ and label 0 otherwise. Then the f is called the Fibonacci divisor cordial labeling if $|e_f(0) - e_f(1)| \leq 1$, where $e_f(0)$ is the number of edges with label 0 and $e_f(1)$ is the number of edges with label 1. If a graph has a fibonacci divisor cordial labeling, then it is called Fibonacci divisor cordial graph. In this paper, we prove that Peterson graph and some classes of Shell graphs are fibonacci divisor cordial labeling.

Keywords: *cordial labeling, divisor cordial labeling, fibonacci divisor cordial labeling, peterson graph, shell graph.*

AMS Mathematics Subject Classification: 05C78

Introduction

Through out this paper, By a graph we mean a simple connected graph $G = (V, E)$ with p vertices and q edges. For standard terminology and notations related to graph theory we refer to Harary [6].

A graph labeling is an assignment of integers to the vertices or edges or both subject to certain conditions. Graph labelings were first introduced in the late 1960's. Most graph labeling methods trace their origin to one introduced by Rosa [7] in 1967, or one given by Graham and Sloane [4] in 1980. The concept of cordial labeling was introduced and studied by I. Cahit [2]. Based on his results, In 1997, Yi!maz and Cahit introduced E-cordial labeling as a weaker version of edge-graceful labeling and having flavour of cordial labeling, it was a source of motivation for whether we can consider the condition of cordial labeling by replacing graceful labeling using Fibonacci numbers. This idea lead us to define a new labeling called Fibonacci cordial labeling. Fibonacci cordial labeling can be considered as a frontier between graph theory and number theory. R. Sridevi et al., introduce a new concept called Fibonacci divisor cordial labeling. They also prove the standard graphs such as

1 Assistant Professor, Department of Mathematics, Sadakathullah Appa College (Autonomous), (Affiliated in Manonmaniam Sundaranar University, Tirunelveli), Rahmath Nagar, Tamil Nadu, India.

2 Research Scholar, Department of Mathematics, Sadakathullah Appa College (Autonomous), (Affiliated in Manonmaniam Sundaranar University, Tirunelveli), Rahmath Nagar, Tamil Nadu, India.

ORIGINAL RESEARCH PAPER VOLUME-6 | ISSUE-8 | AUGUST - 2017 | ISSN No 2277 - 8179 | IF : 4.176 | IC Value : 78.46

INTERNATIONAL JOURNAL OF SCIENTIFIC RESEARCH

SKOLEM MEAN LABELING OF FOUR STAR GRAPHS $K_{1,a_1} \cup K_{1,a_2} \cup K_{1,a_3} \cup K_{1,b}$ where $a_1 + a_2 + a_3 + 2 \le b \le a_1 + a_2 + a_3 + 3$

Mathematics

D.S.T.Ramesh Department of Mathematics, Margoschis College, Nazareth- 628617 Tamil Nadu, India

S.O.Sopna Department of Mathematics, Sree Devi kumara Women's College kuzhithurai. K.K.District -629163

I.Gnanaselvi Department of Mathematics, Sarah Tucker College, Tirunelveli-627007, Tamil Nadu, India

M.P.Syed Ali Nisaya Assistant Professor, Department of Mathematics, SadakathullaAppa College,Tirunelveli-627011 Tamil Nadu,India

ABSTRACT

A graph G = (V, E) with p vertices and q edges is said to be a skolem mean graph if there exists a function f from the vertex set of G to{1, 2, . . . , p} such that the induced map f* from the edge set of G to {2, 3, . . . , p} defined by $f^*(e = uv) = \frac{f(u)+f(v)}{2}$ if f(u) + f(v) is even and $\frac{f(u)+f(v)+1}{2}$ if f(u) + f(v) is odd, then the resulting edges get distinct labels from the set {2, 3, . . . , p}. In this paper, we prove that four star graph $G = K_{1,a_1} \cup K_{1,a_2} \cup K_{1,a_3} \cup K_{1,b}$ where $a_1 \le a_2 \le a_3$ is a skolem mean graph if $|b - a_1 - a_2 - a_3| \le 3$.

KEYWORDS:

Skolem mean graph, skolem mean labeling, star graphs

Introduction

All graphs in this paper are finite, simple and undirected. Terms not defined here are used in the sense of Harary [3]. The symbols V(G) and E(G) will denote the vertex set and edge set of the graph G. A graph with p vertices and q edges is called a (p, q) graph. In this paper, we prove that four star graph $G = K_{1,a_1} \cup K_{1,a_2} \cup K_{1,a_3} \cup K_{1,b}$ where $a_1 \le a_2 \le a_3$ is a skolem mean graph if $a_1 + a_2 + a_3 + 2 \le b \le a_1 + a_2 + a_3 + 3$.

1. Skolem mean labeling

Definition 1.1 A graph G is a non empty set of objects called vertices together with a set of unordered pairs of distinct vertices of G called edges. The vertex set and the edge set of G are denoted by V(G) and E(G) respectively. $|V(G)| = q$ is called the size of G, we say that u and v are adjacent and that u and v are incident with e.

Definition 1.2 A vertex labelling of a graph G is an assignment of labels to the vertices of G that induces for each edge xy a label depending on the vertex labels f(x) and f(y). Similarly, an edge labelling of a graph G is an assignment of labels to the edges of G that induces for each vertex v a label depending on the edge labels incident on it. Total labelling involves a function from the vertices and edges to some set of labels.

Definition 1.3 A graph G with p vertices and q edges is called a mean graph if it is possible to label the vertices $x \in V$ with distinct elements f(x) from 0, 1, 2, …q in such a way that when each edge e = uv is labeled with $\frac{f(u)+f(v)}{2}$ if f(u) + f(v) is even and $\frac{f(u)+f(v)+1}{2}$ if f(u) + f(v) is odd, then the resulting edge labels are distinct. The labeling f is called a mean labeling of G.

Bounds on Non-neighbour Platt Number of Chemical Graphs

Mallika A.[1] and Bala Navis M.[2]

Abstract

Topological index is a numerical quantity derived from the hydrogen suppressed molecular graph. There are many topological indices. We define a new index called Non-neighbour Platt number. In the paper, we find the Non-neighbour Platt number for the graphs derived from the standard graphs. Also, we investigate the bounds of non-neighbour and the bounds of Non-neighbour Platt number.

Keywords: *Platt number, Non-neighbour, Non-neighbour Platt number, Bounds, Glueing Graphs.*

Introduction

A topological representation of a molecule is called a molecular graph. A molecular graph contains atoms and covalent bonds. In graph theory, the atoms are represented by vertices and covalent bonds are represented by edges. A topological index is a numerical quantity derived from the hydrogen suppressed molecular graph.There are many topological indices. One of the oldest topological index is Platt number. The Platt number was introduced by Platt in 1947[4]. We define a new index called Non-neighbour Platt number.

In a graph G, the degree of the vertex $d(v)$ is the number of edges incident on v. The degree of an edge $e = uv$ is defined by $d(u) + d(v) - 2$ and it is denoted by $D(e)$. The *Platt number* is the summation of degree of all its edges and it is denoted by $F(G)$. The non-neighbour of an edge $e = uv$ of a graph G is defined by $m - [D(e) + e]$, where m is the number of edges of the graph G. It is denoted by $\overline{D}(e)$. The *Non-neighbour Platt number* is the sum of non-neighbours of all its edges and it is denoted by $\overline{F}(G)$. The *diameter* is the maximum of the distances in a graph G and it is denoted by $diam(G)$.

Example 1.1

The chemical compound octane equivalent to the graph P_8 has Non-neighbour Platt number 30.

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IMPACT FACTOR : 5.7631(UIF) REVIEW OF RESEARCH UGC APPROVED JOURNAL NO. 48514 ISSN: 2249-894X

VOLUME - 8 | ISSUE - 3 | DECEMBER - 2018

IMPACT OF HYPERTENSION AND DIABETICS ON OPEN ANGLE GLAUCOMA SEVERITY – AN EMPIRICAL STUDY

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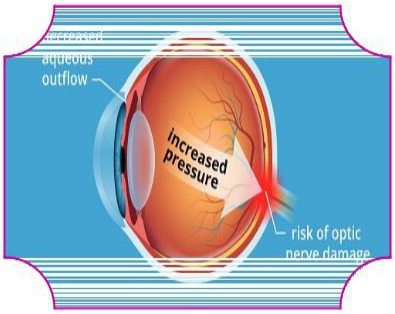

ABSTRACT

Open angle glaucoma is one of the leading causes of blindness in the Indian context. Though there are a lot of awareness being created among the people in the recent years, there is still a lack of understanding among the people regarding open angle glaucoma. The present paper focuses on the reasons behind the occurrence and severity of open angle glaucoma and how does it affect either gender. The number of samples for the present research is 200 and they are selected non-randomly from the patients of eye Hospital, Tirunelveli. The data has been analysed using AMoS software. The findings and suggested provided in the present paper can be utilised in the prevention and cure of open angle glaucoma.

KEYWORDS: *Open angle glaucoma, Severity, Blindness and prevention.*

INTRODUCTION :

Glaucoma is a disease that damages your eye's optic nerve. It usually happens when fluid builds up in the front part of your eye. That extra fluid increases the pressure in your eye, damaging the optic nerve Glaucoma is a leading cause of blindness for people over 60 years old. But blindness from glaucoma can often be prevented with early treatment. There are two major types of glaucoma.1. Primary open-angle glaucoma: This is the most common type of glaucoma. It happens gradually; where the eye does not drain fluid as well as it should (like a clogged drain). As a result, eye pressure builds and starts to damage the optic nerve. This type of glaucoma is painless and causes no vision changes at first. Some people can have optic nerves that are sensitive to normal eye pressure. This means their risk of getting glaucoma is higher than normal. Regular eye exams are important to find early signs of damage to their optic nerve.2. Angle-closure glaucoma (also called "closed-angle glaucoma" or "narrow-angle glaucoma").This type happens when someone's iris is very close to the drainage angle in their eye. The iris can end up blocking the drainage angle. You can think of it like a piece of paper sliding over a sink drain. When the drainage angle gets completely blocked, eye pressure rises very quickly. This is called an acute attack. It is a true eye emergency, and you should call your ophthalmologist right away or you might go blind.

Here are the signs of an acute angle-closure glaucoma attack:

vision is suddenly blurry
have severe eye pain
have a headache
feel sick to your stomach
(nausea) throw up (vomit)
see rainbow-colored rings or halos around lights

International Journal of Computer Science
Scholarly Peer Reviewed Research Journal - PRESS - OPEN ACCESS
ISSN: 2348-6600
http://www.ijcsjournal.com Volume 6, Issue 1, No 04, 2018 ISSN: 2348-6600
Reference ID: IJCS-341 PAGE NO: 2277-2285
Department of Mathematics, DDE, Madurai Kamaraj University, India January 8-10, 2018
International Conference on Algebra and Discrete Mathematics (ICADM-2018)
http://icadm2018.org icadm2018@gmail.com

Magic sum spectra of ladder graphs

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For a positive integer k, a graph $G=(V,E)$ is Z_k-magic if there exists a labeling $f:E(G)\to Z_k-\{0\}$ such that the induced vertex sum $f^+:V(G)\to Z_k$ defined by $f^+(v)=\sum_{uv\in E(G)} f(uv)$ is a constant r is called a magic sum index. For fix integer k, the magic sum spectrum of G with respect to Z_k is the set of all magic sum indices r and it is denoted by $I_k(G)$. In this paper we obtained the integer magic spectra of certain classes of ladder graphs, möbius ladder graphs and some corono of ladder graphs.

Keywords: Z_k-magic, magic sum spectra, ladder graph, möbius ladder, corono graph.
Subject Classification: 05C78.

1 Introduction

A *graph labeling* is an assignment of integers to the vertices (or) edges or both subject to the certain constrains. Most graph labeling methods trace their origin to one introduced by Alex Rosa[4] in 1967. Since Sedl`ac̆ek[5] introduced the notation of magic valution of a graph $G=(V,E)$ is a bijection from $V\cup E$ to $1,2,\cdots,|V\cup E|$ such that for all edge $xy, f(x)+f(y)+f(xy)$ is a constant called *magic constant* of f. A positive integer K is said to be magic constant of G. Later Ringel and Llado' rediscovered this notation and called it *edge magic labeling*.

For any positive integer $k\geq 2$, let $Z_k=(Z_k,+,0)$ to be the additive abelian group of integer congruences modulo k with identity 0. We call a graph G to be Z_k magic if their exist a labeling $f:E(G)\to Z_k-\{0\}$ such that the vertex labeling f^+ defined as $f^+(v)=\sum_{uv\in E} f(uv)=r$ taken overall edges uv incident at v is a constant where r is called magic sum index of G,under the labeling of f, which follows R.P. Stanley[6].For a fixed k, $I_k(G)$ is the set of all magic sum indices r such that G is Z_k magic with an index r. We call $I_k(G)$ the magic sum spectrum, or the index set of G with respect to Z_k [7].

In this paper we obtained the magic sum spectra of some classes of ladder, Möbius ladder, and corona of ladder graphs which are finite simple connected graph, with vertexset V and edge set E and *Ladder graph* L_n is a planar undirected graph

International Journal of Computer Science
Scholarly Peer Reviewed Research Journal - PRESS - OPEN ACCESS
ISSN: 2348-6600
http://www.ijcsjournal.com Volume 6, Issue 1, No 03, 2018 ISSN: 2348-6600
Reference ID: IJCS-340 PAGE NO: 2267-2276
Department of Mathematics, DDE, Madurai Kamaraj University, India January 8-10, 2018
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A note on annihilating ideal graph of Z_n

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Abstract

Let R be a commutative ring with identity and $\mathbb{A}^*(R)$ the set of non-zero ideals with non-zero annihilators. The *annihilating-ideal graph* of R is defined as the graph $\mathbb{AG}(R)$ with the vertex set $\mathbb{A}^*(R)$ and two distinct vertices I_1 and I_2 are adjacent if and only if $I_1 I_2 = (0)$. In this paper, we obtain a characterization for the annihilating-ideal graph $\mathbb{AG}(R)$ to be unicyclic, claw-free and outerplanar when $R = \mathbb{Z}_n$.

Keywords: claw-free graph, outer planar graph, unicyclic graph.
Subject Classification: 05C38, 05C75, 13A15.

1 Introduction

The study of algebraic structures using the properties of graphs became an exciting research topic in the past years leading to many fascinating results and questions. There are many papers assigning graphs to rings, groups and semigroups. Let R be a commutative ring with identity. In [1], D. F. Anderson and P. S. Livingston associate a graph called *zero-divisor graph,* $\Gamma(R)$ to R with vertices $Z(R)^*$, the set of non-zero zero-divisors of R and for two distinct $x, y \in Z(R)^*$, the vertices x and y are adjacent if and only if $xy = 0$ in R. Recently M. Behboodi and Z. Rakeei [4, 5] have introduced and investigated the annihilating-ideal graph of a commutative ring. We call an ideal I_1 of R, an *annihilating-ideal* if there exists a non-zero ideal I_2 of R such that $I_1 I_2 = (0)$. For a non-domain commutative ring R, let $J(R)$ be the Jacobson radical of R and $\langle x \rangle$ be the ideal of R generated by x and $\mathbb{A}^*(R)$ be the set of non-zero ideals with non-zero annihilators. The *annihilating-ideal graph* of R is defined as the graph $\mathbb{AG}(R)$ with the vertex set $\mathbb{A}^*(R)$ and two distinct vertices I_1 and I_2 are adjacent if and only if $I_1 I_2 = (0)$.

International Journal of Computer Science
Scholarly Peer Reviewed Research Journal - PRESS - OPEN ACCESS
ISSN: 2348-6600
http://www.ijcsjournal.com Volume 6, Issue 1, No 03, 2018 ISSN: 2348-6600
Reference ID: IJCS-340 PAGE NO: 2267-2276
Department of Mathematics, DDE, Madurai Kamaraj University, India January 8-10, 2018
International Conference on Algebra and Discrete Mathematics (ICADM-2018)
http://icadm2018.org icadm2018@gmail.com

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Int. J. Math. And Appl., 6(2–A)(2018), 1–5
ISSN: 2347-1557
Available Online: http://ijmaa.in/

International Journal of *Mathematics And its Applications*

On Contra Weakly μg-Continuous Function in Generalized Topological Spaces

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Abstract: In this paper we introduce some new class of functions called contra wμg-continuous functions and contra wμg-irresolute functions using wμg-closed sets in generalized topological space. We investigate their relationships with other existing functions in generalized topological space. Also we prove that composition of two contra wμg-continuous need not be contra wμg-continuous.

Keywords: wμg-closed sets, contra wμg-continuous functions, contra wμg-irresolute functions.

 Accepted on: 02.03.2018

1. Introduction

In 2002, generalized topological space (GTS), introduced by A. Császár [2] In 2009, W.K.Min [4] has introduced and studied the notion of (α, g') continuous functions, (π, g') continuous functions in generalized topological space. In 2011, D.Jayanthi [3] has introduced some contra continuous functions in generalized topological space. The purpose of this paper is to define a new class of continuous functions called contra wμg-continuous functions and contra wμg-irresolute functions in GTS.

2. Preliminaries

Let X be a non empty set, $\exp X$ denotes the power set of X . A generalized topology simply GT [2] on a non empty set X is a collection of subsets of X such that $\phi \in \mu$ and μ is closed under arbitrary union. Elements of μ are called μ-open sets.A subset A of X is said to be μ-closed if A^c is μ-open.Then the pair (X,μ) is called a Generalized Topological Space(GTS).If A is a subset of X, then c_μ(A) is the smallest μ-closed set containing A and i_μ(A) is the largest μ-open set contained in A.A space (X,μ) is said to be strong, if $X \in \mu$. Throughout this paper X and Y mean GTS's (X,μ_1) and (Y,μ_2) and the function $f : X \to Y$ denotes a single valued function of a space (X,μ_1) into a space (Y,μ_2).We recall the following definitions and results.

Definition 2.1 ([5]). *Let (X, μ) be a GTS, and $A \subseteq X$. Then A is said to be*

(1). μ-α-open if $A \subseteq i_\mu c_\mu i_\mu(A)$

(2). μ-π-open if $A \subseteq i_\mu c_\mu(A)$

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Int. J. Math. And Appl., 6(2–A)(2018), 1–5
ISSN: 2347-1557
Available Online: http://ijmaa.in/

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Int. J. Math. And Appl., 6(2–A)(2018), 7–12
ISSN: 2347-1557
Available Online: http://ijmaa.in/

International Journal of *Mathematics And its Applications*

On Soft $g^{**}\mu$-Closed Sets in Soft Generalized Topological Spaces

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Abstract: In this paper we introduce some new class of sets called soft $g\mu$-closed sets,soft $g^*\mu$-closed sets and soft $g^{**}\mu$-closed sets in soft generalized topological spaces and some of their properties are established.Further, by using soft $g^{**}\mu$-closed sets we introduce soft $T_{\mu_{g^{**}}}$-space.

Keywords: Soft $g\mu$-closed sets, soft $g^*\mu$-closed sets, soft $g^{**}\mu$-closed sets and soft $T_{\mu_{g^{**}}}$-space.

 Accepted on: 02.03.2018

1. Introduction

In 1999 Molodtsov [4] was introduced the concept of soft set theory as a new mathematical tool for dealing with uncertain problems.Shabir and Naz [5] introduced the notion of soft topological spaces which is defined over a universe with a fixed set of parameters. In 2002, A.Császár [2] introduced the theory of generalized topological spaces. Soft Generalized Topology (**SGT**) is based on soft set theory. In 2014, Jyothis and Sunil [3] introduced the concept of Soft Generalized Topological Space and discussed some separation axioms in **SGTS**. Recently M.Vigneshwaran, K. Baby [6] were introduced soft β^*g$\alpha\mu$-closed sets in Soft Generalized Topology. The Soft Generalized Topology is different from Soft Topology by its axioms. The purpose of this paper is to introduce soft $g\mu$, $g^*\mu$, $g^{**}\mu$-closed sets in SGTS and investigate some of their properties.

2. Preliminaries

Let U be an initial universe and E be the set of all possible parameters with respect to U. Let P(U) denote the power set of U and A be a nonempty subset of E.

Definition 2.1 ([1]). *Let F_A be a soft set over U defined by the set of ordered pairs $F_A = \{(e, f_A(e))/e \in E, f_A(e) \in P(U)\}$, where f_A is a mapping given by f_A: $A \to P(U)$ such that $f_A(e) = \varphi$ if $e \notin A$. Here f_A is called an approximate function of the soft set F_A. The family of all these soft sets over U with E is denoted by $S(U)$ or $S(U)_E$.*

Definition 2.2 ([1]). *Let $F_G, F_H \in S(U)$. Then the soft union of soft sets F_G, F_H is defined by the approximate function $f_{G\cup H}(e) = f_G(e) \cup f_H(e)$.*

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Int. J. Math. And Appl., 6(1–E)(2018), 1071–1076
ISSN: 2347-1557
Available Online: http://ijmaa.in/

International Journal of *Mathematics And its Applications*

On Soft $\#\pi g$-continuous Function in Soft Topological Spaces

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Abstract: This paper focuses on soft $\#\pi g$-continuous function in soft topological spaces and compare its relationship with other soft continuous function.

Keywords: Soft $\#\pi g$-closed set, soft $\#\pi g$-continuous function,soft $\#\pi g$-irresolute,soft generalized closed, soft topological spaces.

1. Introduction

The concept of soft set theory was first introduced by D. Molodtsov [8], a Russian researcher in 1999 as a new approach to handle uncertainties. Shabir and Naz [10] introduced the notion of soft topological spaces along with its properties. Kannan [6] introduced soft generalized closed and open sets in soft topological spaces. C.Janaki and V. Jeyanthi [3] introduced soft-πgr-closed sets.Soft-πgb-closed sets was introduced by C.Janaki and D.Sreeja [5] in soft topological spaces. In this paper, a new class of function called soft $\#\pi g$-continuous function is defined and study the relationships with other soft continuous function.

2. Preliminaries

Let U be an initial universe set and E be a collection of all possible parameters with respect to U, where parameters are the characteristics or properties of objects in U. Let $P(U)$ denote the power set of U, and let $A \subseteq E$.

Definition 2.1 ([8]). *A pair (G, A) is called a soft set over U, where G is a mapping given by $G : A \to P(U)$. In other words, a soft set over U is a parametrized family of subsets of the universe U. For a particular $e \in A$, $G(e)$ may be considered the set of e-approximate elements of the soft set (G, A).*

Definition 2.2 ([2]). *For two soft sets (G,A) and (H,B) over a common universe U, we say that (G,A) is a soft subset of (H, B) if*

(1). $A \subseteq B$ and

(2). $\forall\ e \in A$, $G(e) \,\widetilde{\subset}\, H(e)$.

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Strong dominating sets and Strong Domination Polynomial of Complete Graphs

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Abstract

Let G = (V, E) be a simple graph. A set $S \subseteq V$ is called a dominating set if every vertex $v \in V$ is either a member of S or adjacent to a member of S. A set $S \subseteq V$ is a strong dominating set of G if for every $u \in V - S$, there exists a $v \in S$ such that $uv \in E$ and deg (u) $\leq$ deg (v). Let k_m be complete graph with order m. Let $Sd(K_m^j)$ be the family of strong dominating sets of a complete graph K_m with the number of elements in the set j, and let $Sd(K_m j) = |Sd(K_m^j)|$. In this paper, we establish K_m and obtain a iterative formula for $Sd(K_m j)$. Using this iterative formula, we consider the polynomial $SD(K_m, x) = \sum_{j=1}^{m} Sd(K_{m,} j)\, x^j$, which we call strong domination polynomial of complete graphs and obtain some examples of this polynomial.

1 Introduction

Let G = (V, E) be a simple graph of order |V| = m. A set $S \subseteq V$ is called a dominating set if every vertex $v \in V$ is either a member of S or adjacent to a member of S. A set $S \subseteq V$ is a strong dominating set of G if for every $u \in V-S$, there $v \in S$ such that $uv \in E$ and deg (u) $\leq$ deg (v). The minimum cardinality of strong dominating set is called minimum strong domination number and is denoted by γ_{sd} (G). Alkhani and Peng found the dominating sets and domination polynomial of cycles and certain graphs [2], [3]. Abdul Jalil M. Khalaf and Sahib Shayyal Kahat found the dominating sets and domination polynomial of complete graph with missing edges [1]. Gehet, Khalf and Hasni found the dominating set and domination polynomial of stars and wheels [4] [5]. Let H_m be a graph with order m and let H_m^j be the family of dominating sets of a graph H_m with the number of elements in the set

j and let $d(H_{m,} j) = |H_m^j|$. We call the polynomial $D(H_{m,} x) = \sum_{j=\gamma(H)}^{n} d(H_{m,} j)\, x^j$, the domination polynomial of graph G [3]. Let K_m^j be the family of strong dominating sets of a complete graph K_m with the number of elements in the set j and let $Sd(K_{m,} j) = |K_m^j|$. We call the polynomial $SD(K_m, x) = \sum_{j=\gamma_{Sd}(K_m)}^{\gamma n} Sd(K_{m,} j)\, x^j$, the strong domination polynomial of complete graph. In the next section we establish the families of strong dominating sets of K_m with the number of elements in the set j by the families of strong dominating sets of K_{m-1} with number of elements j and j – 1. We explore the strong domination polynomial of complete graphs in section 3.

STRONG DOMINATION POLYNOMIAL OF STARS

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Abstract :Let G = (V, E) be a simple graph. A set $S \subseteq V$ is called a dominating set if every vertex $v \in V$ is either a member of S or adjacent to a member of S. A set $S \subseteq V$ is a strong dominating set of G if for every $u \in V - S$, there exists a $v \in S$ such that $uv \in E$ and deg (u) $\leq$deg (v). Let S_m be a star graph with order m. Let $Sd(S_m^j)$ be the family of strong dominating sets of a star graph S_m with the number of elements in the set j, and let $Sd(S_m, j) = |Sd(S_m^j)|$. In this paper, we establish S_m and obtain a iterative formula for $Sd(S_m,j)$. Using this iterative formula, we consider the polynomial $SD(S_m, x) = \sum_{j=\gamma_{sd}(S_m)}^{m} Sd(S_m, j)\, x^j$, we call strong domination polynomial of star graphs and obtain some examples of this polynomial.

1. Introduction

Let G = (V, E) be a simple graph of order |V| = m. A set $S \subseteq V$ is called a dominating set if every vertex $v \in V$ is either a member of S or adjacent to a member of S. A set $S \subseteq V$ is a strong dominating set of G if for every $u \in V - S$ there $v \in S$ such that $uv \in E$ and deg(u) $\leq$deg(v). The minimum cardinality of strong dominating set is called minimum strong domination number and is denoted by $\gamma_{sd}(G)$. Sahib Sh. Kahat, Abdul Jalil M. Khalaf and RoslanHasni found the dominating sets and domination polynomial of wheels [1]. Abdul Jalil M. Khalaf and Sahib ShaggalKahat found the domination sets and domination polynomial of complete graph with missing edges [2]. Alikhani and Peng found the dominating sets and domination polynomial of cycles and certain graphs [3], [4]. Gehet, Khalaf and Hasni found the dominating set and domination polynomial of stars [5]. Let H_m be a graph with order m and let H_m^j be the family of dominating sets of a graph H_m with the number of elements in the set j and let $d(H_m, j) = |H_m^j|$. We call the polynomial $D(H_m, x) = \sum_{j=\gamma(H_m)}^{m} d(H_m, j)\, x^j$, , the domination polynomial of graph H_m [4]. Let S_m^j be the family of strong dominating sets of a star S_m with the number of elements in the set j and let $Sd(S_m, j) = |S_m^j|$. We call the polynomial $SD(S_m, x) = \sum_{j=\gamma_{sd}(S_m)}^{m} Sd(S_m, j)\, x^j$, the strong domination polynomial of star. In the next section we establish the families of strong dominating sets of S_{m-1} with the number of elements j and j – 1. We explore the strong domination polynomial of star graph in next section. Asusual we use $\binom{n}{i}$ or nc_i for the combination n to i and we denote the set {1, 2, … m} simply by [m], and we denote deg (u) to degree of the vertex u and

let $\Delta(G) = \max\{\deg(u) / \forall u \in V(G)\}$ and $\delta(G) = \min\{\deg(u) / \forall u \in V(G)\}$

2. Strong dominating sets of Star (S_m)

Let S_m, $m \geq 3$ be the star with m vertices $V(S_m) = [m]$ and $E(S_m) = \{(v, u) : \forall u, v \in V(S_m)\}$. Let S_m^j be the family of strong dominating sets of S_m with the number of elements m the set j. We shall explore the strong dominating sets of stars. To prove our main results we need the following Lemmas.

Lemma 1

The following properties hold for all graph H.

(i) $|H_m^m| = 1$

(ii) $|H_m^{m-1}| = m$

(iii) $|H_m^j| = 0$ if $j > m$

(iv) $|H_m^0| = 0$

Proof :

Let H = (V, E) be a simple graph of order m, then

(i) $H_m^m = \{H\}$, Therefore, $|H_m^m| = 1$

(ii) $H_m^{m-1} = \{H - u | \forall u \in H\}$, Therefore, $|H_m^{m-1}| = m$

(iii) There does not exist $K \subseteq H$ such that |V (K)| > |V (H)|. Therefore, $|H_m^j| = 0$ if j> m

Journal of Computer and Mathematical Sciences, *Vol.9(12),2138-2146 December 2018* *ISSN 0976-5727 (Print)*
(An International Research Journal), *www.compmath-journal.org* *ISSN 2319-8133 (Online)*

Weak dominating sets and Weak Domination Polynomial of Complete Graphs

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(Received on: December 12, 2018)

ABSTRACT

Let G = (V, E) be a simple graph. A set $S \subseteq V$ is called a dominating set if every vertex $v \in V$ is either a member of S or adjacent to a member of S. A set $S \subseteq V$ is a weak dominating set of G if for every $u \in V - S$, there exists a $v \in S$ such that $uv \in E$ and deg (u) $\geq$ deg (v). Let K_m be complete graph with order m. Let $Sd(K_m^j)$ be the family of weak dominating sets of a complete graph K_m with the number of elements in the set j, and let $Wd(K_{m,} j) = \left|Wd(K_m^j)\right|$. In this paper, we establish K_m and obtain a iterative formula for $Wd(K_m j)$. Using this iterative formula, we consider the polynomial $WD(K_m, x) = \sum_{i=1}^{m} Wd(K_{m,} j)\, x^j$, which we call strong domination polynomial of complete graphs and obtain some examples of this polynomial.

Keywords: Weak Dominating set, Weak Domination Polynomial, Recursive formula.

1. INTRODUCTION

Let G = (V, E) be a simple graph of order |V| = m. A set $S \subseteq V$ is called a dominating set if every vertex $v \in V$ is either a member of S or adjacent to a member of S. A set $S \subseteq V$ is

Some Structures on Inverse Graphs of a Finite Group

Mallika, A.,[1] and Chitra, M.[2]

Abstract

Let (Γ,$*$) be a finite group and S be a possibly empty subset of Γ containing non-selfinvertible elements. The Inverse graphs $G_S(\Gamma)$ of a group is a graph with vertex set as the elements of Γ such that two distinct vertices u and v are adjacent if and only if either $u * v \in S$ or $v * u \in S$. In the paper, we investigate Inverse Graphs for Direct product of groups. Also, we characterize the necessary and sufficient condition for the graphs to be regular or the graph to be Eulerian. Finally, we bring out the chromatic number of Inverse graphs.

Keywords: *Planar, Regular, Inverse, Invertible, Domination.*

Introduction

Algebraic graph theory is a branch of mathematics in which algebraic methods are applied to problems about graphs. There are three main branches of algebraic graph theory, involving the use of linear algebra, the use of group theory and the study of graph invariants.

The paper is a study of graphs in connection with group theory. The Cayley graph was first considered for the finite groups by Arthur Cayley in 1878. Max Dehn in his unpublished lectures on group theory from 1909-10 reintroduced Cayley graphs under the name gruppenbuild (group diagram) which led to the geometric group theory of today. The Cayley graph is a graph that encodes the abstract structure of a group. Other examples of graphs with groups are Commuting graphs, Intersection graphs and Prime graphs.

During the last two decades researchers are more interested in studying graphs associated with rings. In 1988, Beck introduced the concepts of Zero divisor graph of a commutative ring. Some examples of graphs associated with rings are unit graphs, total graphs and co-maximal graphs. They defined Inverse graphs associated with finite groups and discussed some properties of Inverse graphs. The aim of the paper is to study some of the properties of Inverse graphs.

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RESEARCH DIRECTIONS ISSN NO – 2321-5488 UGC Sr. No. 45489 EOI
10.11229/researchdirections/Jun19/09
Impact Factor – 5.11

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A CONCEPTUAL STUDY ON ANGLE-CLOSURE GLAUCOMA

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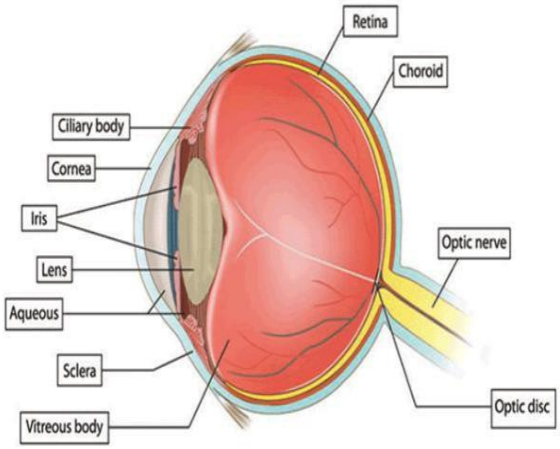
1.1 Introduction

The eyes are protected by sclera which is a tough white covering. One could see a portion of the white sclera in the front of the eye. Covered by a fragile and clearity,sclera is known as conjunctiva.

Cornea is at the front of the eye. In order to protect the eyes, cornea acts as the clear part of the eye's protective covering. It allows light to enter the eye. Eye has different minute parts which function for a clear vision. One of the parts in eye is the iris. It flips up and down so as to let light into the eye. The pupil directs the light to the lens. The retina is the destination for the lens to light the former. The optic nerve as a vehicle passes the images to the brain of the nerve fibres in the retina.



Healthy Drainage

Shaped by means of a ciliary body, a fluid fills the front part of the eye. It is known as intraocular fluid or aqueous humour. The fluid flows out through the pupil. It is then absorbed into the bloodstream through the eye's drainage system.

The iris and its outer parts are processed or passed through a drainage system. One's eye pressure is kept at bay with the help of the proper drainage. The afore-mentioned such as the flow, production and drainage are the routines essential for the healthiness of the eyes.

The intraocular pressure (IOP) banks on the eyes' fluid. When one's eye's drainage system is in normal working condition, the fluid automatically drains out and stops a further build-up. In such a case, one's eye's fluid system helps one to access the required portion of fluid for the sustainability of the eyes. One's IOP varies in a day. However, the normalcy of the IOP is maintained.

The Eye with Glaucoma

The clogging of the eye's drainage system paves the way that the intraocular fluid remains without draining. The acceleration of the fluid paves the way for a kind of pressure within the eye. One could lose one's vision when the sensitive optic nerves are under high pressure.

DOUBT FUZZY BI - IDEAL OF BS-ALGEBRAS

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Abstract : In this paper, a new notion called BS-algebras, which is a generalization of the idea of BE/B/BCK, is introduced. We extend fuzzy ideal into fuzzy bi-ideal in BS-algebras. Then we introduce the notion of doubt fuzzy bi-ideal of BS-algebras. We investigate some algebraic nature of doubt fuzzy bi-ideal of BS-algebras. Doubt fuzzy bi-ideal of BS-algebras is also applied in Cartesian product. Finally, the homomorphic behaviour of doubt fuzzy bi-ideal of BS-algebras have been obtained.

***IndexTerms* –Fuzzy bi-ideal,Doubt fuzzy bi-ideal,Cartesian product,homomorphism(BS-algebras).**

I. INTRODUCTION

After the introduction of fuzzy subsets by L.A.Zadeh[3], several researches explored on the generalization of the notion of fuzzy subset. In 1966, Imai and Iseki introduced two classes of abstract algebras viz. BCK-algebras and BCI-algebras[1]. The class of BCK-algebras is a proper subclass of the class of BCI-algebras. J.Neggers and H.S. Kim introduced the notion of B-algebras[2] which is a generalisation of BCK-algebras. We introduce the notion of BS-algebras which is a generalisation of B-algebras. In this paper, we presented doubt fuzzy bi-ideal called DF bi-ideal of BS-algebras and establish some of their basic properties. The Cartesian product of fuzzy bi-ideal for BS-algebras has been introduced and some important properties are also studied. Finally, we investigate how to deal with homomorphism.

II. PRELIMINARIES

Definition: A BS-algebra is a non empty set with a constant 1 and a binary operation * satisfying the following axioms

(i) $x*x=1$
(ii) $x*1=x$
(iii) $1*x=x$
(iv) $(x*y)*z = x*(z*(1*y)) \ \forall \ x, y, z \in X$

Note: We call X as BS-algebra. A binary relation $\leq$ on X can be defined by $x \leq y$ if and only if $x*y=1$.

Example: Let X={1,a,b,c} be a set with the following Cayley table

*	1	a	b	c
1	1	a	b	c
a	a	1	c	b
b	b	c	1	a
c	c	b	a	1

Then (X,*,1) is a BS-algebra.

Definition: Let μ be a fuzzy set in a BS-algebra X. Then μ is called a fuzzy sub algebra of X if
$\mu(x*y) \geq \min\{\mu(x),\mu(y)\} \ \forall \ x, y \in X$

Definition: A fuzzy set μ of BS-algebra X is called a fuzzy ideal of X if it satisfies the following conditions

(i) $\mu(1) \geq \mu(x)$
(ii) $\mu(y) \geq \min\{\mu(x),\mu(y*x)\} \ \forall \ x, y, z \in X$

Definition: A fuzzy subset μ in a BS-algebra X is called fuzzy bi-ideal if

(i) $\mu(1) \geq \mu(x)$
(ii) $\mu(y*z) \geq \min\{\mu(x), \mu(x*(y*z))\} \ \forall \ x, y, z \in X$

American International Journal of Research in Science, Technology, Engineering & Mathematics

Available online at http://www.iasir.net

ISSN (Print) 2328-3491, ISSN (Online) 2328-3580, ISSN (CD-ROM) 2328-3629

AIJRSTEM is a refereed, indexed, peer-reviewed, multidisciplinary and open access journal published by International Association of Scientific Innovation and Research (IASIR), USA

(An Association Unifying the Sciences, Engineering, and Applied Research)

Fuzzy derivations KU-Bi-ideals on KU algebras

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Abstract: *In this paper, we introduce a concept of bi-ideals, KU-bi-ideals,fuzzy KU-bi-ideals,left (right) derivations in KU-bi-ideals, fuzzy left(right) derivations in KU-bi-ideals and fuzzy derivations in KU-bi-ideals on KU algebras. We give the concepts of the image and pre-image of fuzzy left(right) derivations in KU-bi-ideals under homomorphism of KU algebras and investigated some of its properties. Further,we have proved that every image and pre-image of fuzzy left(right) derivations in KU-bi-ideals under homomorphism of KU algebras are fuzzy left(right) derivations KU-bi-ideals.*

Keywords: *Bi-ideal, KU-bi-ideal, fuzzy KU-bi-ideal,left derivations of KU-bi-ideal,right derivations of KU-bi-ideal, derivations of KU-bi-ideal,fuzzy left derivations of KU-bi-ideal,fuzzy right derivations of KU-bi-ideal,fuzzy derivations of KU-bi-ideal.*

I. Introduction

The concept of a fuzzy derivative was first introduced by S.S.L.Chang and Zadeh.In 1965,Zadeh defined the fuzzy set and then many authors investigated this concept and applied it on different branches of mathematics.After that 1966,a new structure in mathematics was obtained by Imai and Iseki called BCK-algebra.Then many studies appeared on BCK\BCI-algebra and its properties.The concept of derivation which applied firstly on rings and near rings presented by so many authors. Subsequently,Jun and Xin proposed derivation on BCI-algebra and many results were obtained.Recently,Aboujabal and Alshehri discussed the derivation on BCK-algebra.Moreover,in 2007 they defined a left derivation on BCK-algebras and investigated a regular left derivation. In this chapter,we introduce the notion of fuzzy left(right) derivations of KU-bi-ideals in KU algebras.The homomorphic image(pre-image) of fuzzy left(right) derivations of KU-bi-ideals in KU algebras under homomorphism of a KU-algebras are discussed.Many related results and theorems have been derived.

II.Preliminaries

In this section,we recall some basic definitions and results that needed for my work.

Definition 2.1: Let X be a set with a binary operation * and a constant 0.(X,*,0) is called KU-algebra if the following axioms hold:$\forall$ x,y,z$\in$X:

(KU_1) (x*y)*[(y*z)*(x*z)]=0

(KU_2) (x*0)=0

(KU_3) 0*x=x

(KU_4) if x*y=0=y*x implies x=y

Define a binary relation $\leq$ by :$x \leq y \leftrightarrow y*x=0$,we can prove that $(X,\leq)$ is a partially ordered set.

In this chapter,X will denote a KU-algebra.

Corollary 2.2: In KU-algebra the following identities are true for all x,y,z$\in$X:

(i) z*z=0

(ii) z*(x*z)=0

(iii) If $x \leq y$ implies $y*z \leq x*z$

(iv) z*(y*x)=y*(z*x)

(v) y*[(y*x)*x]=0

Definition 2.3: A subset S of KU-algebra X is called sub algebra of X if x*y$\in$S,whenever x,y$\in$S

Definition 2.4: A non empty subset A of KU-algebra X is called ideal of X if it is satisfied the following conditions:

(i) 0$\in$A

(ii) y*z$\in$A,y$\in$A implies z$\in$A $\forall$y,z$\in$X.

American International Journal of Research in Science, Technology, Engineering & Mathematics

Available online at http://www.iasir.net

ISSN (Print): 2328-3491, ISSN (Online): 2328-3580, ISSN (CD-ROM): 2328-3629

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(An Association Unifying the Sciences, Engineering, and Applied Research)

Intuitionistic Fuzzy Bi-ideals of BCK-Algebras

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Abstract: *We consider the intuitionistic fuzzification of the concept of sub-algebras and Bi-ideals in BCK-algebras and explore some of their properties. We suggest the perception of equivalence relations on the clan of all intuitionistic fuzzy Bi-ideals of a BCK-algebra and explore some related properties.*

Keywords: *(Intuitionistic)fuzzysubalgebra, (Intuitionistic)fuzzy ideal,(Intuitionistic)fuzzy Bi-ideal, homomorphism.*

I. Introduction

Behind the initiation of the concept of fuzzy set by Zadeh [6] several researches were directed on the generalizations of the thought of fuzzy sets. The intention of " Intuitionistic fuzzy set" was first publicized by Atanassov [5], as a generalization of the knowledge of fuzzy set. The author (together with Hong, Kim, Meng, Roh and Song) considered the fuzzification of ideals and sub-algebras in BCK-algebras ([1, 2,3,4]). In this paper, using the Atanassov's and Young Bae Jun intention, we enact the intuitionistic fuzzification of the concept of sub-algebras and Bi-ideals in BCK-algebras, and examine some of their properties. We suggest the perception of equivalence relations on the clan of all intuitionistic fuzzy Bi-ideals of a BCK-algebra and explore some related properties.

II. Preliminaries

Definition2.1:[1]By a BCK-algebra we mean a non-empty set X with a binary operation * and a constant 0 satisfying the following condition:

(a) ((x*y)*(x*z)*(z*y)) = 0

(b) (x*(x*y))*y) = 0

(c) x*x = 0

(d) 0*x = 0

(e) x*y = 0 and y*x = 0 imply that x = y for all x, y, z ∈ X.

Definition2.2:[6] A partial ordering "≤" on X can be defined by x ≤ y iff x*y = 0.

Definition2.3:[1] A non-empty subset S of a BCK-algebra X is called a sub -algebra of X if x*y ∈ S whenever x,y ∈ S.

Definition2.4:[1] A non-empty subset I of a BCK-algebra X is called an ideal of X if

(a) 0 ∈ I

(b) x*y ∈ I and y ∈ I imply that x ∈ I for all x, y ∈ X.

Definition2.5:[6] A fuzzy set μ in a non-empty set X we mean a function μ : X → [0,1].

Definition2.6:[6] The complement of μ, denoted by $\bar{\mu}$ is the fuzzy set in X given by $\bar{\mu}(x) = 1 - \mu(x)$ for all x∈ X.

Definition2.7:[1] A fuzzy set μ in a BCK-algebra X is called a fuzzy sub-algebra of X if μ(x) ≥ min {μ(x), μ(y)} for all x, y ∈X.

Definition2.8:[1] A fuzzy set μ in a BCK-algebra X is called a fuzzy ideal of X if

(a) μ(0) ≥ μ(x) for all x∈X

(b) μ(x) ≥ min { μ(x*y),μ(y) } for all x,y∈X.

III. Intuitionistic Fuzzy Bi-ideal

Definition3.1:[5] A non-empty set X is an object having the form A = { (x,λ_A(x), μ_A(x)) / x∈X } where the functions λ:X→ [0,1] and μ:X → [0,1] denote the degree of membership and the degree of non-membership of each element x ∈X to the set A and $0 \leq \lambda_A(x) + \mu_A(x) \leq 1$ for all x∈X.

An intuitionistic fuzzy set A = {(x,λ_A(x), μ_A (x)) / x∈ X} in X can be identified to an ordered pair (λ_A, μ_A) in $I^X \times I^X$. For the sake of simplicity, we use the symbol $A = (\lambda_A, \mu_A)$ for the IFS, A ={(x,λ_A(x), μ_A (x) / x∈ X}.

On Anti Fuzzy Bi-ideal Of BCK-Algebra

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Abstract : The notion of fuzzy bi-ideals of a BCK-Algebra and the notion of anti-fuzzy bi-ideal of a BCK-Algebra are introduced. Using a collection of fuzzy bi-ideal we established anti-fuzzy bi-ideal of a BCK-Algebra . We show that μ is an anti-fuzzy bi-ideal in X iff μ^c is a fuzzy bi-ideal in X. The concept of the fuzzification of a anti-fuzzy bi-ideal and anti-fuzzy sub-algebra of a BCK-Algebra are introduced and investigate some of the properties.

IndexTerms **– Fuzzy bi-ideal, Anti-Fuzzy Bi-ideal, Fuzzy sub-algebra, Anti-Fuzzy Sub-algebra.**

I. INTRODUCTION

The concept of fuzzy sets was defined by Zadeh. In 1966, Imai and Iseki introduced two classes of abstract algebras, BCK-Algebras and BCI-Algebras. BCK-Algebras where studied by many researchers. In 1995, Jun applied the concept of fuzzy set to BCK-Algebras. He also got some interesting results. In 1990, Biswas introduced the concept of anti –fuzzy subgroup of group and now recently Hong and Jun, modifying Biswas idea, applied the concept of BCK-Algebras. So they defined the notion of anti-fuzzy ideal of a BCK-Algebras and obtain some useful result on it. To develop the theory of BCK-Algebras, the ideal theorey plays an important role.

In this paper we introduce the notion of fuzzy bi-ideal and anti-fuzzy bi-ideal of a BCK-Algebra. Using a collection of fuzzy bi-ideal we established anti-fuzzy bi-ideal of a BCK-Algebra . We show that μ is an anti-fuzzy bi-ideal in X iff μ^c is a fuzzy bi-ideal in X. The concept of the fuzzification of a anti-fuzzy bi-ideal and anti-fuzzy sub-algebra of a BCK-Algebra are introduced and investigate some of the properties.

II. PRELIMINARIES

Definition 2.1:[3] By a BCK-algebra we mean a non-empty set X with a binary operation * and a constant 0 satisfying the following condition:

(a) ((x*y)*(x*z)*(z*y)) = 0
(b) (x*(x*y))*y) = 0
(c) x*x = 0
(d) 0*x = 0
(e) x*y = 0 and y*x = 0 imply that x = y for all x, y, z ∈ X.

Definition 2.2:[1] A partial ordering "≤ " on X can be defined by x ≤ y iff x*y = 0.

Definition 2.3:[3] A non-empty subset S of a BCK-algebra X is called a sub -algebra of X if x*y ∈ S whenever x, y ∈ S.

Definition 2.4:[3] A non-empty subset I of a BCK-algebra X is called an ideal of X if

(a) 0 ∈ I
(b) x*y ∈ I and y ∈ I imply that x ∈ I for all x, y ∈ X.

Definition 2.5:[1] A fuzzy set μ in a non-empty set X we mean a function μ : X → [0,1].

Definition 2.6:[1] The complement of μ, denoted by $\bar{\mu}$ is the fuzzy set in X given by $\bar{\mu}(x) = 1 - \mu(x)$ for all x ∈ X.

Definition 2.7:[2] A fuzzy set μ in a BCK-algebra X is called a fuzzy sub-algebra of X if μ(x) ≥ min {μ(x), μ(y)} for all x, y ∈ X.

Definition 2.8:[3] A fuzzy set μ in a BCK-algebra X is called a fuzzy ideal of X if

(a) μ(0) ≥ μ(x) for all x ∈ X
(b) μ(x) ≥ min { μ(x*y),μ(y) } for all x, y ∈ X.

Definition 2.9 :[1] A mapping f:X→Y of a BCK-Algebra is called a homomorphism if f(x*y) = f(x)*f(y) for all x,y ∈ X.

Definition 2.10 :[3] A fuzzy subset μ of X is said to have sup property if for any subset T, there exists $t_0 \in T$ such that $\sup_{t \in T} \mu(t)$.

American International Journal of Research in Science, Technology, Engineering & Mathematics

Available online at http://www.iasir.net

ISSN (Print): 2328-3491, ISSN (Online): 2328-3580, ISSN (CD-ROM): 2328-3629

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(An Association Unifying the Sciences, Engineering, and Applied Research)

On Supra N* Topological Space

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Abstract: *The aim of this paper is to introduce the concept of supra N* topological spaces and discuss about supra separation axioms in supra N* topological spaces.*

Keywords: *supra topological space, supra N* topological space, supra Nτ* open set , supra Nτ*-closure , supra Nτ*-T_0space, supra Nτ*-T_1space and supra Nτ*-T_2space.*

I. Introduction

The concept of N topological space was introduced by M. Lellis Thivagar, V. Ramesh and M. ArockiaDasan[5]. A non-empty set X equipped with N-arbitrary topologies $\tau_1, \tau_2, \ldots, \tau_N$ is called N topological spaces. The supra topological spaces have been introduced by A.S. Mashhour[7] in 1983. In topological space the arbitrary union condition is enough to have a supra topological space. Here every topological space is a supra topological space but the converse is not always true. In this paper we introduce and study the concept of supra N*topological spaces and investigate some new separation axioms called supra Nτ*-T_0space, supra Nτ*-T_1space and supra Nτ*-T_2space. Also we study some of their basic properties in supra N*topological spaces.

II. Preliminaries

Definition 2.1: (X,τ) is said to be a Supra topological space if it satisfies the following conditions:

a) $X, \emptyset \in \tau$

b) The union of any number of sets in τ belongs to τ.

Definition 2.2: Each element $A \in \tau$ is called a Supra open set in (X, τ) and its complement is called a Supra closed set in (X, τ).

Definition 2.3: If (X, τ) is a supra topological space, $A \subseteq X$, $A \neq \emptyset$, τ_A is the class of all intersection of A with each element in τ, then (A, τ_A) is called a Supra topological subspace of (X, τ).

Definition 2.4: The Supra closure of the set A is denoted by Supra cl(A) and is defined as Supra-$cl(A) = \cap \{ B : B \text{ is Supra closed and } A \subseteq B\}$.

Definition 2.5: The Supra interior of the set A is denoted by Supra int(A) and is defined as Supra-$\text{int}(A) = \cup \{B: B \text{ is Supra closed and } B \subseteq A\}$.

Definition 2.6: A Supra open function means the image of any supra open set in (X,τ) is a supra open set in (X^*,τ^*) where these are two supra topological spaces.

III. Supra N* topological spaces

Definition 3.1: If $\tau_1^*, \tau_2^*, \ldots, \tau_N^*$ or Nτ* are N-arbitrary Supra N* topologies on a non-empty set X, then $(X, N\tau^*)$ is said to be a Supra N* topological space.

Definition 3.2: Each element of Nτ* is called a Supra Nτ* open set in $(X, N\tau^*)$ and its complement is called a Supra Nτ* closed set in $(X, N\tau^*)$.

On Rk-Algebras

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ABSTRACT

The paper consists of the idea of RK-algebra which has the specialism of B-algebras. We prove that B-algebra is the super class and RK-algebra is the correct sub class. We prove that RK algebra is similar to 0-commutative B-algebra.The appropriate sub class is Coxeter algebra of super class RK-algebra.

Keywords: *RK-algebra, B-algebra, (pre-) Coxeter algebra, 0-commutative.*

1. INTRODUCTION

Y. Imai and K. Iseki had presented two classes of abstract algebras: BCK-algebras andBCI-algebras ([1,2]). It is known that the class of BCK-algebras is a proper subclassof the class of BCI-algebras. In [3,4] Q. P. Hu and X. Li introduced a wide class ofabstract algebras: BCH-algebras. They have shown that the class of BCI-algebras is aproper subclass of the class of BCH-algebras. J. Neggers and H. S. Kim ([5]) introducedthe notion of d-algebras which is another generalization of BCK-algebras, and also, theyintroduced the notion of B-algebras ([6,7]), that is (i) $a*a= 0$; (ii) $a*0 = a$; (iii) $(a*b)*c= a*(c*(0*b))$, for any a, b, $c\in S$, Which is equal in some sense to thegroups. Moreover, Y. B. Jun, E. H. Roh and H. S. Kim ([8]) presented a new notion,called an BH-algebra, which is a simplification of BCH / BCI / BCK-algebras, that is (i); (ii)and (iv) $a*b= 0$ and $b*a= 0$ imply a= bfor any a, $b\in S$. A. Walendziak obtained theanotherequivalentaxioms for B -algebra ([9]). H. S. Kim, Y. H. Kim and J. Neggers([10]) introduced the notion a (pre-) Coxeter algebra and showed that a Coxeter algebra isequivalent to an abelian group all of whose elements have order 2, that is a Boolean group. The paper we designed the idea of a RK-algebras which is a specialism of B-algebra. We prove that B–algebra is the super class and the RK-algebra is the correct sub class. we provethat a RK-algebra is similar to a 0-commutative B-algebra. The appropriate sub class is Coxeter algebra of super class RK-algebra. And we studied the numerous number of relations between RK-algebras and (pre-) Coxeter algebras.

2. RK-ALGEBRAS

A RK –algebra is a non-empty set Swith a constant 0 and a binary operation "$*$" satisfying the following axioms:

(i) $a*(a*a) = a$, for all $a\in S$

(ii) $((c*a)*(c*b))*0 = b*a$,for any a, b, $c\in S$.

ADV MATH SCI JOURNAL
Advances in Mathematics: Scientific Journal 8 (2019), no.3, 754–758
(Special issue on ICRAPAM)
ISSN 1857-8365 printed version
ISSN 1857-8438 electronic version

PRIME CORDIAL AND SIGNED PRODUCT CORDIAL LABELING ON IDENTITY GRAPH

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Abstract The following scientific paper deals with the exploration of the prime cordial labeling. Further, we investigate the signed product cordial, square difference and analytic mean labeling on identity graph

Keywords . Prime cordial, signed product cordial, square labeling, analytic mean labeling.

AMS Mathematics subject classification: 05C78.

1. Introduction

Graph labelling is nothing but allocating integers to the vertices or edges or both subject to specific conditions. It was first promulgated in the later days of 1960's. Though much has been said and done on the graph labelling in the paramount five decades, every one base their findings to the theory articulated by Rosa [7] in 1967. In the meantime something noteworthy sprang up in 1980 with the advent of I. Cahit [2] and he pioneered the cordial labelling of graphs. However, over the past five decades in excess of two thousand papers have spawned a bewildering array of graph labelling methods. A chain of survey on graph labelling is regularly updated by Gallian [3] and it is published by Electronic Journal of Combinatorics. A vast amount of literature is made accessible on varied types graph labelling and more than thousand research papers have been published during the past three decades. Indeed, all these papers focus on particular classes of graphs and methods, and feature ad hoc arguments.

Labelled graphs opened up new vistas for a wide array of applications like coding theory, rudiments of radar functioning, study of celestial bodies, designing complex circuits, network communication, handling of countless data base, clandestine sharing schemes, constraint programming designs for the

International Journal of Scientific Research in Mathematical and Statistical Sciences
Vol.6, Issue.3, pp.41-44, June (2019)
DOI: https://doi.org/10.26438/ijsrmss/v6i3.4144

Research Paper

E-ISSN: 2348-4519

Private Dominating Sets and Private Domination Polynomial of Friendship Graphs

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Available online at: www.isroset.org

Received: 14/May/2019, Accepted: 18/Jun/2019, Online: 30/Jun/2019

***Abstract*—** Let *G* be a simple graph of order *n* and V denotes vertex set and E denotes edge set of G. A subset S of V is called Private domination set of graph G if it is dominating set and also every *u* in *S* there exist an external private neighbour *v* in other than S in V. And Private Domination Polynomial of G is the polynomial denoted as $PD(G,x^j)$, is the sum of Private dominating sets Pd(G,j), where Pd(G,j) be the cardinality of the family of Private domination set with cardinality *j* . Let *m* be any positive integer and F_m be the Friendship graph constructed by joining K_1 and *m* times of K_2. In this paper, we investigate the properties of Private domination set and Private Domination Polynomial for family of Friendship graph and a special case called Friendship graph with missing vertex.

***Keywords*—** *Dominating set, Domination Polynomial, Private Domination set, Private Domination Polynomial, Friendship Graph, Missingvertex.*

I. INTRODUCTION

Let *G=(V,E)* be a simple graph of order *n*. A set D ⊆ V is a Dominating set of G, if every vertex in V-D is adjacent to atleast one vertex in D. The domination number γ(G) is the minimum cardinality of the dominating sets of G [2],[3],[11]. A set S⊆V is called Private domination set of graph G, it is dominating set and also for every *u* in *S* there exist an external private neighbor *v*∈V-S. The maximum cardinality of Private domination set is denoted as $\Gamma_{Pd}(G)$ [1] and the minimum cardinality of Private domination set is denoted by $\gamma_{Pd}(G)$. With this concept, we construct a new term called "Private Domination Polynomial"[1] as like follows, let Pd(G,j) be the cardinality of the family of Private domination set with cardinality *j*, then Private Domination Polynomial is defined as $PD(G, x)= \sum_{j=\gamma(G)}^{|V(G)|} Pd(G,j)\, x^j$.

In this paper, F_m denotes Friendship graph with *2m+1* vertices and *3m* edges, and $F_m{}^j$ be the family of Private dominating set of Friendship graph F_m with cardinality *j* and $Pd(F_m, j) = |F_m{}^j|$ [7]. We also call $PD(F_m, j)$ as Private Dominating Polynomial of Friendship Graph F_m.

In Section II, we investigate the properties of Private dominating set of F_m , Section III contains construction of Private Domination Polynomial for F_m, Section IV deals with Private Domination Polynomial of Friendship Graph with missing vertex(F'_m) and finally Section V describes the Private Domination Polynomial of F'_m .

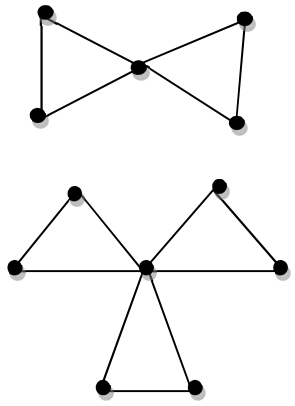

Fig 1: Friendship graph F_2 , F_3 respectively

II. Private dominating set of Friendship graph

In the following section, we investigate about Private Dominating set of Friendship Graph F_m.

Lemma 2.1 [8] The following properties hold for all graph G,

1. $|G_n^i| = 0$ if $i > n$
2. $|G_n^0| = 0$

Theorem 2.2: Let F_m be a Friendship graph of order *2m + 1*, and *v*∈ $V(F_m)$ such that *v* be the center vertex of F_m , (i.e) *v* is nothing but K_1, which joining the mK_3*'s* then,

Comparison Of Fuzzy Time Series And ARIMA Model

K. Senthamarai Kannan, M. SulaigaBeevi, S. Syed Ali Fathima

Abstract—Crude Oil price, deregulated commodity, which plays a vital criterion in the global economy. Government of India give permission to Oil Companies to revise the price of fuel daily based on the change of international crude oil price and Dollar currency exchange rate. Forecasting is the one of the essential tool to predict the future environment of the fuel price. This paper collates the applications of two Forecasting models such as Auto Regressive Moving Average (ARIMA) model and Fuzzy time series model, on petrol price prediction. The error values, Root Mean Square Error (RMSE), Mean Square Error (MSE) and Mean Absolute Error (MAE) are calculated numerically and graphically for the forecasted values.

Index Terms ACF, ARIMA, Fuzzy time series, MAE, MSE,PACF, petrol price

1 INTRODUCTION

India is the fourth largest consumer of oil and also imports nearly two-thirds of crude oil requirements. Fluctuation of oil prices will definitely affect the economy. Lower oil prices will reduce the import bill by Rs. 4000 crore per every decrease in dollar, save foreign exchange, keep the inflation low and also reduce the fuel subsidies. It is estimated that a $ 10 fall in crude could reduce the current account and the fiscal deficit by approximately 0.5% and 0.1% respectively of GDP. Hence, the government allow the Oil Companies to revise the fuel price monthly twice based on the changes in the international crude oil price and Dollar currency exchange rate since 2002. The system is dropped in June 15, 2017 and it leads the changes in the price of petrol on daily basis.

Planning is essential for the country, business firm and every individual. Time series is a set of observation taken at specified times, at equal intervals. Time series relation between "Cause" and "Effects". One variable "Time", which is independent variable and the "Data", the dependent variable.

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2. LITERATURE SURVEY

Fuzzy logic was introduced by L.A.Zadeh in 1965 defined as set of elements with varying degree of membership function μn: U→[0,1].In 1993 and1996 many researchers used max-min composition in their forecasting model. Song and Chissom[4]proposedmamadani's method to compute fuzzy relation and compare the difference between the traditional time series and fuzzy time series. Song and Chissom[5]divide universe of discourse in to 7 same lengths of intervals and used max-min composition as defuzzification of the output. Further the researcher in [1]Chen used new model of max-min composition technique with new fewer complexes then used max-min composition. Most of the researcher used fixed length of intervals and Chen's approach in between year 1996 to 2000 after that various hybrid model was used. Wang [6]discussed a comparison method of forecasting using fuzzy time series and ARIMA model. For this purpose, they have used the data related to the Taiwan export data. Yun – Sheng Hsu et al., [7] discussed traditional methods of forecasting and heuristics model of forecasting and then compared the two methods. Dani and Sarma[3] forecasted using first order time variant method for this purpose total monsoon rainfall in 18 yrs of one of the region of Chhattisgarh.Sarma and Chouhan[2]analyzed a traditional method ARIMA comparing Neural network fuzzy time series model.

3.MATERIALS AND METHODS

3.1 DataSource

The Daily price changes of Petrol price data for the period of 16 June 2017 to 4 December 2017 obtained from the Indian Oil Corporation Ltd.

The basic statistics for all the data are given in Table 1 as follows

Comparison of Double Exponential Smoothing Model and Auto Regressive Integrated Moving Average Model for Financial Data

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ABSTRACT

Stock market volatility is important for investment, option pricing and financial market regulation. In recent years, stock market analysis and prediction have the greatest significance for many professionals in the fields of finance and stock exchange. There are many methods available in the literature to solve the problem of future prediction. The present study provides a detailed comparison of Double Exponential Smoothing (DES) model and Auto Regressive Integrated Moving Average (ARIMA) model. Future values are forecasting using DES and ARIMA model. Forecasted values for different α and β values are calculated from DES method and ARIMA (1, 1, 1). Also, Mean Square Error (MSE), Root Mean Square (RMSE), Mean Absolute Deviation (MAD) and Mean Absolute Percentage Error (MAPE) are calculated individually for both methods.

Keywords: Time Series, Double Exponential Smoothing, ARIMA and Forecasting.

I. INTRODUCTION

Financial analysis and forecasting have a great significance for many professionals in the fields of finance and the stock market. An important part of the analysis of a time series is the selection of a suitable probability model for the data. Time series analysis and its applications have become more essential in various fields of research, such as business, economics, engineering, medicine, social sciences and politics. This analysis can be used to carry out different goals such as descriptive analysis, spectral analysis, forecasting, intervention analysis and explanative analysis.

One of the most successful forecasting methods is the exponential smoothing methods. Moreover, it can be modified efficiently to use effectively for time series with seasonal patterns. It is also easy to adjust for past errors easy to prepare to follow on forecasts; several different forms are used depending on the presence of trend or cyclical variations. In short, an exponential smoothing method is an averaging technique that uses unequal weights; however, the weights are applied to past observations decline in an exponential manner.

The construction of forecast function based on discounted past observations is most commonly carried out by exponential procedures. These procedures are attractive, that they allow the forecast function to be updated very easily every time a new observation become popular since they are easy to implement and can be quite effective, they are implemented without respect to a properly defined statistical models.

II. LITERATURE SURVEY

We discussed here, various forecasting methods based on DES and ARIMA. Hansun (2016) has introduced a new approach of Brown's Double Exponential Smoothing in time series analysis. The new approach will combine the calculation of

IJCRT.ORG ISSN : 2320-2882

INTERNATIONAL JOURNAL OF CREATIVE RESEARCH THOUGHTS (IJCRT)

An International Open Access, Peer-reviewed, Refereed Journal

ACYCLIC PATH DECOMPOSITION NUMBER OF SOME GRAPHS

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Abstract: A *decomposition* of a graph G is a collection ψ of edge-disjoint subgraphs $H_1, H_2, \ldots, H_r$ of G such that every edge of G belongs to exactly one H_i . If each H_i is a path or a cycle in G, then ψ is called a *path decomposition* of G. If each H_i is a path in G, then ψ is called an acyclic path decomposition of G. The minimum cardinality of a path decomposition (acyclic path decomposition) of G is called the *path decomposition number (acyclic path decomposition number)* of G and is denoted by $\pi_a(G)$. In this paper we investigate some proper acyclic path decomposition number and induced path decomposition number of special types of graphs.

Index Terms **- Friendship graph, Pan graph, Tadpole graph, Pineapple graph, Path decomposition, Induced path decomposition.**

I. INTRODUCTION

Graphs can be used to model many types of relations and processes in physical, biological, social and information systems. Many practical problems can be represented by graphs. Emphasizing their application to real-world systems, the term *network* is sometimes defined to mean a graph in which attributes are associated with the vertices and edges.

There are more research problem going indepth in graph theory with lot of applications. One such concept is Decomposition of graphs. A *decomposition* of a graph is a collection of edge-disjoint subgraphs of such that every edge of belongs to exactly one. It has various kinds namely cyclic decomposition, ear decomposition, Hamiltonian decomposition, modular decomposition etc.

In 2009, S. Arumugam, I. Sahul Hamid and V. M. Abraham when he proved complete graph can be decomposed into $\left\lfloor \frac{n}{2} \right\rfloor$ paths and also proved star graph can be decomposed into $\left\lfloor \frac{m}{2} \right\rfloor$ paths. The focus of this paper is to investigate the path decomposition number and induced path decomposition number of some graphs. One can refer to [4 ,5] for the following definitions.

II. PRELIMINARIES

Definition 2.1. A **path** is a trail in which all vertices (and therefore also all edges) are distinct.

Definition 2.2. A **cycle** is a closed trail in which the origin and internal vertices are distinct.

Definition 2.3. A **decomposition** of a graph G is a collection $\boldsymbol{\psi}$ of edge-disjoint subgraphs $H_1, H_2, \ldots, H_r$ of G such that every edge of G belongs to exactly one H_i . If each H_i is a path or a cycle in G, then $\boldsymbol{\psi}$ is called a **path decomposition** of G. If each H_i is a path in G, then $\boldsymbol{\psi}$ is called an acyclic path decomposition of G. The minimum cardinality of a path decomposition (acyclic path decomposition) of G is called the **path decomposition number (acyclic path decomposition number)** of G and is denoted by $\pi_a(G)$.

Definition 2.4. A **friendship graph** is a graph consists of n triangles with exactly one common vertex is called the center.

Definition 2.5. The **pan graph** is the graph obtained by joining a cycle graph to a singleton graph with a bridge.

Definition 2.6. The **(*m*,*n*) tadepole graph** is a special type of graph consisting of a cycle graph on m (at least 3) vertices and a path graph on n vertices connected with a bridge.

Definition 2.7. The **pineapple graph** K_p^q is a graph obtained by appending q pendant edges to a vertex of a complete graph $K_p (p \geq 3, q \geq 1)$. The pineapple graph is determined by its adjacency spectrum.

α_1 –Near Subtraction Semigroups

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Abstract

In this paper we introduce the concept of α_1- near subtraction semigroups and we have to establish α_1-near subtraction semigroups and investigate some of their characteristics.

Keywords: *α_1- near subtraction semigroup, weak commutative, Regular, , Boolean, Zero symmetric, Insertion of Factors Property, Subalgebra, multiplicative system.*

Mathematical subject classification :06F35

I. Introduction

The theory of near subtraction semigroups is a fast going branch of abstract algebra. **In[1],** Dheena.P defined that A non-empty subset X together with two binary operations "–" and "." is said to be **Subtraction semigroup** If **(i)** (X,–) is a subtraction algebra **(ii)** (X, .) is a semigroup**(iii)** $x(y–z) = xy–xz$ *and* $(x–y)z = xz–yz$ $for\ every\ x,y,z \in X$. and also defined A **Near Subtraction Semigroup** is an algebraic system consisting of a set X and two binary operations '–' and '.' Such that (X,–) is subtraction algebra, (X, .) is a semigroup and $(a–b).c = a.c–b.c$ $for\ all\ a,b,c \in X$.

The notion of near subtraction semigroup are fundamental notions of subtraction algebra. Many researchers have investigated the basic properties of near subtraction semigroup. For basic definition one may refer to Pillz[2]. Motivated by these concept, we establish a Structure in near subtraction semigroup and also discuss various types of near subtraction algebra and obtained equivalent conditions for regularity. More precisely the above near subtraction semigroup is a right near subtraction semigroup..

The purpose of the present paper is to make a systematic study of regularities in structure of near subtraction semigroup. In this Paper challenges of a new type of Regularities in α_1 –Near Subtraction Semigroup are discussed. We discuss some properties of $S\ \alpha_1$ – near subtraction semigroup. We find some characterisation of α_1-near subtraction semigroup without non-zero zero divisors. Finally, We introduce some properties of $S\ \alpha_1$ –near subtraction semigroup with property (α) and their generalizations

II. Preliminaries

Definition: 2.1

A subtraction semigroup X is said to have **Insertion of Factors Property**

(IFP) if for $a, b\ in\ X, ab = 0 \Rightarrow axb = 0\ for\ all\ x \in X$.

Definition: 2.2

A near subtraction semigroup X is called an **S - near subtraction semigroup**. If $a \in Xa\ for\ all\ a\ in\ X$.

α_2- *Near Subtraction* Semigroups

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Abstract **In this paper we introduce the theory of α_2- near subtraction semigroups and we have to establish α_2- near subtraction semigroups and investigate some of their characteristics.**
Key words: **α_2- near subtraction semigroup, weak commutative, Regular, Invariant, Zero symmetric, idempotent,Subalgebra.**
Mathematical subject classification :06F35

I INTRODUCTION

The theory of near subtraction semigroups is a fast going branch of abstract algebra. **In[1],** Dheena.P defined that A non-empty subset X together with two binary operations "–" and "." is said to be **subtraction semigroup** If **(i)** (X,–) is a subtraction algebra **(ii)** (X, .) is a semigroup**(iii)** x(y–z)=xy–xz and (x–y)z= xz–yz for every x, y, z∈X. and also defined a ***near subtraction semigroups*** is an algebraic system consisting of a set X and two binary operations '–' and '**.**' Such that (X,–) is subtraction algebra, (X,**.**) is a semigroup and (a–b).c = a.c–b.c, for all a,b,c∈X..
The notion of near subtraction semigroup are fundamental notions of subtraction algebra. Many researchers have investigated the basic properties of near subtraction semigroup. For basic definition one may refer to Pillz[2]. Motivated by these concept, we establish a Structure in near subtraction semigroup and also discuss various types of near subtraction algebra and obtained equivalent conditions for regularity. More precisely the above near subtraction semigroup is a right near subtraction semigroup.

The purpose of the present paper is to make a systematic study of regularities in structure of near subtraction semigroup In this Paper challenges of a new type of Regularities in α_2-Near Subtraction Semigroup are discussed. We discuss some properties of S α_2- near subtraction semigroup. We find some characterisation of α_2-near subtraction semigroup without non-zero zero divisors. Finally, We introduce some properties of S-α_2-near subtraction semigroup with property (α) and their generalizations

II PRELIMINARIES

Definition: 2.1
A near subtraction semigroup X is said to be **weak commutative** if abc= acb for all a,b,c∈ X.
Definition: 2.2
A subtraction semigroup X is said to be **Von-Neumann regular** if for every a∈X, there exists x∈X such that a = axa.
Definition: 2.3
A right near subtraction semigroup X is said to be zero symmetric if $X=X_0$.
Definition: 2.4
A non empty subset S of a subtraction algebra X is said to be a subalgebra of X, if x-yϵX whenever x,yϵS

III A_2- NEAR SUBTRACTION SEMIGROUP

Definiton3.1
The near subtraction semigroup X^* is said to be α_2- near subtraction semigroup if for every $\alpha\epsilon X^*$there exists $x\epsilon X^*$ such that x=xax.
Example: 3.2
Let X = {a, b, c} in which '**-**' and '**.**' are defined by

Anti-Fuzzy Equitable Dominating Set in Anti-Fuzzy Graphs

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Abstract — **In this paper, the notion of anti-fuzzy equitable dominating set, anti-fuzzy equitable independent set and anti-fuzzy equitable independent dominating set of an anti-fuzzy graph are introduced. The anti-fuzzy equitable domination number of an anti-fuzzy graph is obtained. Some interesting results for this parameter are also studied.**

Keywords — **Dominating set, anti-fuzzy equitable dominating set, minimal anti-fuzzy equitable dominating set.**

I. INTRODUCTION

In 2012, M.Akram [1] introduced the concept of anti-fuzzy structures in fuzzy graphs. R.Seethalakshmi and R.B.Gnanajothi [7] introduced the operations on anti-fuzzy graph. A. Somasundram and S.Somasundaram [6] presented several types domination parameters such as independent domination, total domination, connected domination and domination in Cartesian product and composition of fuzzy graphs. R.Muthuraj and A. Sasireka [5] introduced domination in anti-fuzzy graphs. The concept of equitable domination in graphs was introduced by Swaminathan and Dharmalingam [8]. Some works in complementary nil domination in fuzzy graphs can be found in [3, 4]. In this paper, the concept of anti-fuzzy equitable domination set, anti-fuzzy equitable independent set and anti-fuzzy equitable independent dominating set of an anti-fuzzy graph are introduced. The anti-fuzzy equitable domination number of an anti-fuzzy graph is also obtained. Theorems related to these parameters are discussed.

II. PRELIMINARIES

Definition 2.1[1]

A fuzzy graph G = (σ, μ) is said to be an anti-fuzzy graph with a pair of functions $\sigma : V \to [0,1]$ and $\mu : V \times V \to [0,1]$, where for all $u, v \in V$, we have $\mu(u,v) \geq \sigma(u) \vee \sigma(v)$ and it is denoted by $G_{AF}(\sigma, \mu)$.

Definition 2.2[1]

The order p and size q of an anti-fuzzy graph $G = (V, \sigma, \mu)$ are defined to be $p = \sum_{u \in V} \sigma(u)$ and $q = \sum_{uv} \mu(uv)$. It is denoted by $O(G)$ and $S(G)$.

b-Coloring of the Product of Paths and Cycles

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Abstract*: In this paper, we study the b-coloring of the product of paths and cycles. Let G be a graph with vertex set V(G) and edge E(G). The b-coloring is nothing but the b-chromatic number. The b-chromatic number is the largest integer k colors such that every color class has b-vertex. The b-vertex is the color dominating vertex that has an adjacent in all other color class. The b-chromatic number of a graph is denoted by φ(G).*

Keywords: *b-coloring, b-chromatic number, b-vertex.*

I. INTRODUCTION

Let G be a graph containing no loops or multiple edges with vertex set V(G) and edge set E(G). A coloring of the vertices of G is a function c:V(G)→{1,2,...k}. Then the integer c(v) is called the color of v. A coloring is proper if no two adjacent vertices have the same color. The chromatic number χ(G)of a graph G is that the least integer k such that G has a proper coloring using k-colors. Several interesting concepts of the coloring and related parameter are studied in [6,7,8,9].

Motivated by these concepts, W.Iriving and F.Manlove[1] introduced a new concept called b-coloring. A b-coloring of G by k colors is a proper coloring of the vertices of G such that in each color class there is a vertex having neighbours in all the other k-1 color classes. We call any such vertex a b-vertex. The b-chromatic number of a graph G is the greatest integer k such that G has a b-coloring with k-colors. Kouider and Manlove[3] proved some lower and upper bounds for the b-chromatic number of the cartesian product of two graphs. S.K.Vaidya and Rakhimol V.Issac[5] discussed the b-chromatic number of regular graphs, path related graphs, shell and gear graph. More results on the b-chromatic number of a graph can be found in [2,4].

In this paper, we prove the b-chromatic number of the product paths and cycles. The definition of the product of graphs are as follows:

Definition 1.1: A graph G that has one vertex distinguish as the root node, then G is called the rooted graph. The rooted product of a graph G_1 and a rooted graph G_2 is defined as follows :

(i) Draw |V(G)| copies of G_2

(ii) For each vertex v_i of G_1, join v_i with the basis node of the i^{th} copy of G_2.

It is denoted by G_1 o G_2.

Definition 1.2: Let G_1 and G_2 be two graphs. Then the cartesian product of G_1 and G_2 is defined as follows:

(i) Vertex set : $V(G_1)\times V(G_2) = \{(u,v): u\epsilon G_1, v\epsilon G_2\}$

(ii) Edge set : Join (u,v) and (u',v') if u=u' and $vv'\epsilon E(G_2)$ or v=v' and $uu'\epsilon E(G_1)$.

It is denoted by $G_1\square G_2$.

Decycling on Zero Divisor Graphs of Commutative Ring

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Abstract. For a graph Γ_{R_n}, decycling number γ of Γ_{R_n} is the minimum cordinality of the set $\mathbb{S} \subset V(\Gamma_{R_n})$ if $\Gamma_{R_n} - \mathbb{S}$ is acyclic. In this paper we investigate the decycling number for some characterized zero devisor graph of a commutative ring.

INTRODUCTION

The conception of the zero divisor graph of a commutative ring was first initiated by Instvan Beck [2], in 1998. His main focus is on colouring of commutative ring. In 1999, David. F.Anderson and Philip S. Livingston [1] established with slight changes on Beck definition. They handled only the integral domain as a ring. Vertices of the zero divisor graph are the only non-zero zero divisors of ring. Adjacency relation is defined between any two vertices are only to zero. Suppose R is not an integral domain Γ_{R_n} is empty. Γ_0 is Beck graph [2], zero is adjacent to all vertices. Minimum number of edges removed to eliminate the cycle in a graph is denoted by cycle rank $\rho(G) = q - p + k$ (or betti number) [6]. Similarly this technique was implimented based on the removal of vertices is known as the decycling number of graph. It was introduced by W. Beineke and Robert C. Vandell [6, 7] in 1996. Erdós, Saks and Sós proposed this technique in form of analysing maximum number of trees in a graphs [4], but their research based on the bounds and closed results. In 2007 Sheng Bau [9] extended his study upto cubes, grids and snakes with reference of W. Beineke paper. Han Ren, Chao yang Tian-Xiao Zhao [5] derived a new formula for decycling number for K-regular graphs. We also admired the equality $|s| = \frac{1}{k-1}(\beta(G) + m(s))$ on decycling number, where s is the set of decycling vertices, c is the number of component in $G - s$ and $m(s)$ is the margin number [3] such that $m(s) = c + |E(G)| - 1$. In this paper, we obtained sharp bounds of decycling number on simple undirected zero divisor graphs which are not regular. Particularly some classes of zero divisor graphs decycled subject to the condition of decycling. Definitions and explanations are overviewed in the priliminary based on the requirements.

PRELIMINARIES

Zero divisor graphs are viewed and analyzed by different authors in different ways. In this paper we focus the attention to the undirected zero divisor graph Γ_{R_n} whose nodes are the zero divisors of ring R_n be the commutative ring of order n such that $R \backslash \{0\}$. Every edge $e = xy$ belongs to the $E(\Gamma_{R_n})$ be the edge set of Γ_{R_n} if $xy = 0$, every $x, y \in V(\Gamma_{R_n})$, vertex set of Γ_{R_n}. Initially we choose some characterised zero divisor graph based on the prime factorisation of n. Minimum order of decycling set $\mathbb{S}$ of Γ_{R_n} is denoted by γ. We are highlighting some definitions and bounds on decycling, for the convienient of readers as well as to favour the credit of those researchers.

Betti number (or *Cycle rank*) of a graph $G(p, q)$ is lowest cordinality of q is removed to decycle the graph. For any graph cycle rank [6] $\rho = q - p + k$ where k is the number of components of G. Let $\mathbb{S}$ be a *decycling set* of G, then the minimum order of $\mathbb{S}$ is said to be a *decycling number* ∇ [6]. Suppose that ∇ number of vertices are removed from G is said to be a decycling of G, is same as to find the greatest order of an induced forest [6] and to find spanning tree in G such that its co-tree has a largest independent number [3]. An *independent set* of G is a subset of p such that no elements are adjacent and $\alpha(G)$ is the *independence number* of G which represent the largest cordinality of independent set. Let $m(G)$ be the *margin number* of G shows that gap between the $\mathbb{S}$ and ∇-set (minimality of $\mathbb{S}$). The graph $G - E(T)$ is a co-tree of G. Note that $\beta(G)$ be the number of edges in the co-tree of G where as *betti deficiency* of G is the minimum number of odd component contained among in co-trees, is denoted by $\zeta(G)$. This tree is called Xuong-tree [5]. Supposes G is a split graph, can be partitioned in to a clique(complete graph) and an independent set, whose elements are adjacent with clique. The maximal order of induced complete subgraph of G is said to be *clique* and the cordinality of maximum clique is *clique number*, denoted by $\omega(G)$ [2].

Advances in Applicable Mathematics - ICAAM2020
AIP Conf. Proc. 2261, 030038-1–030038-7; https://doi.org/10.1063/5.0016962
Published by AIP Publishing. 978-0-7354-2021-2/$30.00

Derivations Of Contra Fuzzy Ideals Of BF-Algebra

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Abstract. In this paper, we introduce a new concept of derivations (left or right) of contra fuzzy ideals of BF-algebra. We state and prove some theorems about fundamental properties of it. Moreover, we give the concepts of the image and the pre-image of derivations of contra fuzzy ideals under homomorphism of BF-algebra. Furthermore, we give the Cartesian product of derivations of contra fuzzy ideals in Cartesian product of BF-algebra.

INTRODUCTION

In 1966, Imai and Iseki[6] introduced two classes of abstract algebras are BCK-algebras and BCI-algebras . The class of BCK-algebras is a proper sub class of the class of BCI-algebras. J.Neggers and H.S.Kim [3] introduced the notion of B-algebra which is a generalization of BCK-algebras. Walendziak [4] introduced the notion of BF-algebras, which is a generalization of B-algebras and subsequently fuzzy BF-subalgebra were introduced by Saeid and Rezvani [5] in 2009.Recently, in the year 2004, Jun and Xin have applied the notion of derivation in BCI-Algebras which is defined in a way to similar to the notion of derivation in rings and near-rings theory which was introduced by Posner in 1957. In fact, the notion of derivation in ring theory is quite old and plays a significant role in analysis, algebraic geometry and algebra. Y.B.Jun [7] introduced the notion of doubt fuzzy ideals in BCK/BCI algebras in 1991. R.Biswass introduced the concept of anti fuzzy subgroup and S.R.Barbhuiya introduced the doubt fuzzy ideals of BF-algebras. In this paper, we apply the idea of BF-algebras to introduce the notion of derivations of contra fuzzy ideals of BF-algebra and establish some of their basic propeties.

PRELIMINARIES

In this section, we recall some basic defintions and results that are needed for our work.

Definition .1 A BF-algebra is a non-empty set X with a constant 0 and binary operation $*$ satisfying the following axioms:

(i) $x * x = 0$

(ii) $x * 0 = x$

(iii) $0 * (x * y) = y * x \ \forall\ x,y \in X$. A binary relation $\leq$ on X can be defined by $x \leq y$ iff $x * y = 0$

Example .2 Let R be the set of real numbers and X = (R, $*$, 0) be the algebra with the operation $*$ defined by

$$x * y = \begin{cases} x \text{ if } y=0 \\ y \text{ if } x=0 \\ 0 \text{ otherwise.} \end{cases}$$

Definition .3 A non-empty subset S of a BF-algebra X is called a sub-algebra of X if $x * y \in S, \forall\ x,y \in S$.

Definition .4 A non-empty subset I of a BF-algebra X is said to be an ideal of X if

(i) $0 \in I$;

(ii) $x * y \in I$ and $y \in I \Rightarrow x \in I, \forall\ x, y \in I$.

Advances in Applicable Mathematics - ICAAM2020
AIP Conf. Proc. 2261, 030028-1–030028-6; https://doi.org/10.1063/5.0017167
Published by AIP Publishing. 978-0-7354-2021-2/$30.00

Malaya Journal of Matematik, Vol. 8, No. 2, 531-535, 2020

https://doi.org/10.26637/MJM0802/0036

Edge vertex prime labeling of Cayley (di)graphs

N. Mohamed Rilwan[1]* and R. Radha[2]

Abstract

In this paper we investigate the edge vertex prime labeling and super edge vertex prime labeling on Cayley graph $\mathrm{Cay}(\Gamma,\Omega)$, and Cayley digraph $\mathrm{Cay}_D(\Gamma,\Omega)$ where Ω is a generating subset of a finite group Γ.

Keywords

Edge vertex prime, super edge vertex prime, Cayley graph, Cayley digraph.

AMS Subject Classification

05C20, 05C25, 05C78, 05C80.

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Article History: Received **12** September **2019**; Accepted **26** March **2020**

Contents

1. Introduction

Graph labeling is the interesting technique, is applied on a graph such as assigning the labels to the vertices or edges or both subject to the certain constrains. It was contributed by Alex Rosa in 1967[6]. On the past decade, we studied different kind of labeling to variety of graphs such graphs are known as labeled graphs. In this paper one of such labeling technique, namely Edge vertex prime labeling is applied on the well known algebraic structured Cayley graphs. It was introduced by Arthur Cayley in 1878 [2] to illustrate the concept of abstract groups. The vertex and edge transitivity(high symmetric) and regularity make it to allot the same routing and communication schemes in networking. It act as a network models and provide the efficient fault handling capacity to networks. Algorithm type of problems on Cayley directed graphs act as an important application parameter such as X-ray diffraction, coding theory and in the defense sector as a missile activator. The identity free set Ω is a generating subset of a finite group Γ and symmetric (or) closed under inverses. The Cayley graph, $\mathbb{G} = \mathrm{Cay}(\Gamma,\Omega)$ whose vertices are the elements of Γ is denoted by $V(\mathbb{G})$ and the edges corresponds to the operations on every element of Γ with generators as well as connectors, that is $E(\mathbb{G}) = \{(\gamma,\gamma\omega) : \gamma \in \Gamma, \omega \in \Omega\}$. The condition $e \notin \Omega$ imposed the loop free structure to graph. When symmetry condition of Ω does not hold we have a Cayley directed graph, is denoted by $\vec{\mathbb{G}} = \mathrm{Cay}_D(\Gamma,\Omega)$.

2. Preliminaries

Prime labeling was originated by Roger Entringer and it was introduced in paper by Tout Dobboucy and Howalla[11]. Entringer conjectured that prime labeling admits for all trees after it was proved for large trees by Haxell, Pikhurko and Taraz[3]. In [1], A graph $G(V,E)$ is said to be a prime labeled graph there exist a bijective function on the vertex set $f : V(G) \longrightarrow \{1,2,\ldots,|V(G)|\}$ and for each edge $xy \in E(G)$, $f(x)$ and $f(y)$ are relatively prime. Where as in a vertex prime graph $G(V,E)$[5], there exist a bijective function on the edge set such that $f : E(G) \longrightarrow \{1,2,\ldots,|E(G)|\}$. The greatest common divisor of the labels on the incident edges for each vertex $v \in V(G)$ is one. R. Jagadesh and J. Basker Babujee [4] introduced the concept of edge vertex prime labeling and proved the existence of the same for paths P_n, cycles C_n and star $K_{1,n}$. In [7], M. Simaringa and S Muthukumaran proved the triangular and rectangular book, butterfly graph, drums graph, Jahangir graph are edge vertex prime. In this paper we are showing the edge vertex prime labeling(EVPL) and super edge vertex prime labeling(SEVPL) of Cayley graphs and the digraph of it. For further interpretation related to labeling on Cayley digraphs, one can refer [9, 10].

ADV MATH SCI JOURNAL
Advances in Mathematics: Scientific Journal **9** (2020), no.5, 2517–2531
ISSN: 1857-8365 (printed); 1857-8438 (electronic)
https://doi.org/10.37418/amsj.9.5.15

FUZZY t-DERIVATIONS B*-IDEALS IN BCI-ALGEBRAS

M. HIMAYA JALEELA BEGUM[1] AND A. ISSAI ARASI

ABSTRACT. In this paper, we introduce the notion of B*-Ideals in BCI-Algebra. In an associative BCI-Algebra, we prove that every B*-Ideal is a BCI-Ideal (a-ideal, pideal and H-ideal) and converse of the statement is also true. We apply the definition of B*-Ideals into left (right) t-derivations in BCI-Algebra and prove that every t derivations BCI-Ideal is a t-derivations subalgebra in BCI-Algebra. Furthermore, we extend the definition of t-derivations B*-Ideal into Fuzzy left (right) t-derivations B*-Ideal. Also, we prove that every fuzzy t-derivations B*-Ideal of a BCI-Algebra preserves the order. We give the definition of fuzzy closed t-derivations B*-Ideal and prove that every fuzzy t-regular derivation B*-Ideal is a fuzzy closed t-derivation B*-Ideal of an associative BCI-Algebra. Finally, we define the fuzzy t-derivations subalgebra and prove that every fuzzy closed t-derivation B*-Ideal is a fuzzy t derivations subalgebra of a BCI-Algebra.

1. INTRODUCTION

In 1966, Y. Imai and K. Iseki [3] introduced the two classes of logical algebras, namely, BCK-Algebras and BCI-Algebras. Their names were derived from Combinators B (cut), C (exchange), I (identity) and K (weakening) in combinatory logic. It is known that the class of BCI-algebra is a superclass of a class of BCK-Algebra and subclass of Groupoids. K. Iseki proposed the concept ideals in

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2010 *Mathematics Subject Classification.* 03B47, 03B52 13N15, 16D25.

Key words and phrases. B*-Ideals, t-derivations B*-Ideal, fuzzy t-derivations B*-Ideal, closed t-derivations, t-derivations subalgebra.

On Genus of k-Subspace Intersection Graph of Vector Space

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Abstract. Intersection graph $G(A)$ where $A = \{S_i : i \in I\}$ is the family set such that the vertices S_i and S_j are adjacent if and only if $S_i \cap S_j \neq \phi$ for all $i \neq j$. In this paper, we clarify the results of girth, domination, clique, chromatic number, planar and genus of k-subspace intersection graph of the finite dimensional vector space.

INTRODUCTION

In algebraic structure, I. Beck [1] has introduced the idea of zero divisor graph of a commutative ring with unity. Though his key goal, the formal study of relationship between algebra, graph theory and their advancing application also. Many researchers have been done in connecting graph structured formed by algebraic objects [2, 10]. A. Das [5] has also introduced the idea of the subspace inclusion graph of the finite dimensional vector space and proved the results of some basic properties like diameter, girth, clique, chromatic number and some case of finite fields and also studied related results like [3, 4]. Further, K. Selvakumar [8] et al. also studied about the planarity, genus and crosscap of the same. The structure of intersection graphs $G(A)$ have been studied deliating in [7]. The authors Tabebi, Esmaeilifar and Azizpous [9] has defined the graph called k-subspace intersection graph of a finite dimensional vector space. We are motivated by the definition of a intersection graph and the results of the necessary and sufficient condition on k subspace of these graphs are complete and the graphs are connected for $k \geq 2$. In this paper, we characterize the reults of girth, domination, clique and chromatic number of k-subspace intersection graph. Moreover, we also find the result of planar and the genus of the same.
The intersection graph whose vertex set that correspondence with all subspace which is generated by k elements and the adjacent is corresponding to k-subspace intersection does not contain trivial and it is denoted by $G_{k,B}(V, E)$ such that B is a basis of vector space in intersection graph. One of the most important results in topological properties is genus associated with ring have been studied in [2, 10] and the real application for intersection graphs are biology, computing, matrix analysis and statistics.

PRELIMINARIES

In this section, we use the notations, concepts and related results of graph which will be needed in the subsequent sections. In a graph G where $V(G)$ be the vertex set and $E(G)$ be the edge set. In which every pair of distinct vertices are joined by an unique edge is called *complete* graph. The length of the shortest cycle is defined as *girth* and is denoted by $gr(G)$ and the graph does not contain any cycle, the girth is said to be infinity. In plane graph, every nodes and the lines are embed without crossing is said to be *planar graph* (that is the edges intersect only at their end point). Suppose D is a dominating set of $V(G)$ where D is a subset that every vertex not in D is adjacent to at least one member of D and $|D|$ is the number of vertices where D is a smallest dominating set and it is denoted by $\Gamma(G)$. A *clique* of G is a subset of vertices such that every two distinct vertices in the clique are adjacent which induced subgraph is complete. The smallest number of colors are needed to color the vertices of G so that no two vertices have the same color in G is called the *chromatic number* of G and it is denoted by $\chi(G)$. The collection of objects from any ring is said to be vectors if the scalars may be added or multiplied by numbers is called *vector space*. Scalars may be real, complex, rational or generally any field. The axiom of vector space $\mathbb{V}$ is defined with operation of vector addtion and scalar multiplication. If W is a subset of $\mathbb{V}$ under operation of $\mathbb{V}$ then W is said to be subspace of $\mathbb{V}$ if W is vector space over its field. The cardinality of a basis of $\mathbb{V}$ over its field called the *dimension* of a vector space. Suppose vector space $\mathbb{V}$ is finite(infinite), then its dimension is also finite(infinite).
In [9], the *intersection graph* whose vertex set is subspace which is generated by k elements for some basis. Two distinct vertices are adjacent if and only if the k-subspace does not contain trivial intersection. The k-subspace in-

Advances in Applicable Mathematics - ICAAM2020
AIP Conf. Proc. 2261, 030139-1–030139-7; https://doi.org/10.1063/5.0016966
Published by AIP Publishing. 978-0-7354-2021-2/$30.00

Intuitionistic Fuzzy prime Bi-ideals of BCK –Algebras

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Abstract: **In this paper, we establish the intuitionistic fuzzification of the concept of prime bi- ideals in commutative BCK-Algebras, and investigate some properties. Then I is a prime bi-ideal of commutative BCK-Algebra X iff $\bar{I} = (X_I, \bar{X}_I)$ is an intuitionistic fuzzy prime bi-ideal of X. We prove that An IFS A=(α_A, β_A) of commutative BCK-Algebra X is an intuitionistic fuzzy prime bi-ideal of X.**
Keywords: **BCK-Algebra, Intuitionistic Fuzzy Bi-ideals, Intuitionistic Fuzzy prime Bi-ideals.**

I. INTRODUCTION

The concept of fuzzy sets was defined by Zadeh[22].The idea of intuitionistic fuzzy set was introduced by Atanassov[1,2], as generalization of the notion of fuzzy set. In 1966,Imai and Iseki introduced two classes of abstract algebras, BCK-algebras and BCI-algebras[5,6].In 1995, Jun [9] applied the concept of fuzzy set to BCK-algebras. So, he defined the notion of anti fuzzy prime ideal of BCK-algebras and obtained some useful results[8].In 2000,Jun and Kim, using the Atanassov's idea to BCK-algebras[9].So, they established the intuitionistic fuzzification of the concept of sub algebra and ideals in BCK-algebras, and investigated some of their properties.

2. PRELIMINARIES

Definition 2.1[17]

An intuitionistic fuzzy ideal A = (X ,α_A ,β_A) of BCK-Algebra X is called an intuitionistic fuzzy prime ideal of X,if it satisfies the following axiom:

(i) α_A (x ∧ y) ≤ max{α_A (x), α_A (y)}

(ii) β_A (x ∧ y) ≥ min{β_A (x), β_A (y)} for all x, y ∈ X

Definition 2.2[7]

An ideal I of a BCK-Algebra (x, ∗, 0) is called closed ideal,if 0 ∗ x ∈ I,for all x ∈ I.

Definition 2.3[3]

An ideal of commutative BCK-Algebras X is said to be prime if x ∧ y ∈ I implies x ∈ I or y ∈ I.

Definition 2.4

A fuzzy ideal α of commutative algebra X is called anti fuzzy prime ideal of X,
if α (x ∧ y) ≥ min{ α (x), α (y)} for all x, y ∈ X.

Definition 2.5[10]

An IFS, A = (X, α_A , β_A) in X is an intuitionistic fuzzy sub-algebra of X if it satisfies :

(i) α_A (x ∗ y) ≥ min{α_A (x), α_A (y)}

(ii) β_A (x ∗ y) ≤ max{β_A (x), β_A (y)} for all x, y ∈ X.

Definition 2.6[10]

An IF A = (X, α_A , β_A) in X is an intuitionistic fuzzy ideal of X if it satisfies:

(i) α_A (0) ≥ α_A (x) and β_A (0) ≤ β_A (x)

(ii) α_A (x) ≥ min{α_A (x ∗ y), α_A (y)}

(iii) β_A (x) ≤ max{β_A (x ∗ y), β_A (y)} for all x, y ∈ X.

Definition 2.7[10]

An intuitionistic fuzzy ideal A = (X, α_A , β_A) of BCK-Algebra X is called an intuitionistic fuzzy closed ideal of X,if it satisfies the following axiom:

(i) α_A (0 ∗ x) ≥α_A (x)

(ii) β_A (0 ∗ x) ≤ β_A (x) for all x ∈ X.

Definition 2.8.[20]

A fuzzy subset α in a BCK-Algebra X is called fuzzy bi-ideal if :

(i) α_A (0) ≥ α_A (x)

(ii) α_A (x ∗ y) ≥ min{α_A (x ∗ y ∗ z), α_A (z)} for all x, y, z ∈ X.

Malaya Journal of Matematik, Vol. 8, No. 4, 1912-1915, 2020

https://doi.org/10.26637/MJM0804/0096

Some salient feature of topological simple ring

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Abstract

In this paper, we manifest the distinct feature of topological simple ring. A topological simple ring has the algebraic structure of ring and topological structure of a topological space. Further we provide a view of some basic results and theorem related to topological simple.

Keywords

Topological space, Continuous function, Topological ring, topological simple ring, ideals.

AMS Subject Classification

54Hxx, 54C05.

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Article History: Received **15** August **2020**; Accepted **09** October **2020**

Contents

1. Introduction

This paper attributes the concept of topological simple ring. Also here we elucidate some examples and basic results related to topological simple ring.

The concept of topological ring was introduced by D.Van Dantzig and N.Jacobson introduced the totally disconnected locally compact ring and Kalpanasy introduced the compact ring . Later the concept of topological ring was developed and studied by S. Warner[6]. Koteswara Rao introduced the topological 3-ring.

2. Preliminaries

In this section, we recall some definitions and basic results of Topology and algebra which will be used throughout the paper.

Definition 2.1. *[3] A topology on a set X is a collection T of subsets of X having the following properties*
(i) ϕ and X are in T
(ii)The union of the elements of any subcollection of T is in T
(iii)The intersection of the elements of any finite subcollection of T is in T .
A set X for which a topology T has been specified is called a topological space.

Definition 2.2. *[3] A subset U of X is an open set of X if U belongs to the collection T .The complement of open set is called closed set.*

Definition 2.3. *[3] Let X and Y be topological space. A function $f : X \to Y$ is said to be continuous if for each open subset V of Y, the set $f^{-1}(V)$ is an open subset of X.*

Definition 2.4. *[3] Let X and Y be the topological space; let $f : X \to Y$ be a bijection. If both the function f and the inverse function $f^{-1} : Y \to X$ are continuous, then f is called a homeomorphism.*

Definition 2.5. *[6] A topology T on a ring A is a ring topology and A furnished with T is a topological ring if the following conditions hold*
(i)$(x,y) \to x+y$ is continuous from $A \times A \to A$
(ii) $x \to -x$ is continuous from $A \to A$
(iii)$(x,y) \to xy$ is continuous from $A \times A \to A$.

Non-Coprime Graph of Integers

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Abstract-*In this paper, we introduce a new concept of graph named as non-coprime graph of integers. A non-coprime graph of integers, denoted by* $\Gamma^{(n)}$, *is arrived from an integer set* $X = \{1, 2, \dots, n\}$ *whereas the vertex set* $V(G) = X \backslash Y$ *where* $Y = \{x : gcd(x, y) = 1 \text{ for every } y \in X\}$ *and the edge set* $E(G) = \{(x, y) : x, y \in X \text{ and } gcd(x, y) \neq 1\}$. *In this paper, we analyzed some basic properties of the non-coprime graph of integers such as circumference, girth, clique, chromatic number and also prove that the bounds of the domination number, independence number and independent domination number is sharp.*

Keywords — *non-coprime graph, domination, Hamiltonian cycle, semi perfect*

I. INTRODUCTION

Nowadays many investigations of different graphs based on integers have been carried out by several researchers [1,7]. Among all those various graphs on integers the coprime graph is the most popular and dynamic study even if there are many alluring problems and interesting results on divisor graphs [5, 6, 8, 9]. The first problem on special subgraphs of coprime graphs was raised by Paul Erdos in 1962[4]. In this paper we consider only simple, connected undirected graph $G(V, E)$ with $|V|$ vertices and $|E|$ edges. Paul Erdos and Sarkozy[2] have studied the cycles related problem in the coprime graph of integers and also defined coprime graph in 1996. The coprime graph of integers $G = (V, E)$ is constructed from an integer set $X = \{1, 2, \dots, n\}$, and the vertex set $V = X$ and the edge set $E = \{(x, y) : x, y \in X \text{ and } gcd(x, y) = 1\}$. On the other hand, G. N. Sarkozy[3] has extended their studies from cycles to complete tripartite subgraphs in the coprime graph of integers. Further, this concept was generalized by S. Mutharasu, et. al., [1] in 2014. Let $n \geq 2$, $X = \{1, 2, \dots, n\}$ and $A \subseteq X$: Then the generalized coprime graph on n and A, denoted by $CP(n, A) = (V, E)$, where $V = X$ and $E = \{(x, y): x, y \in X \text{ and } gcd(x, y) \in A\}$. In [1], mentioned clearly the coprime graph need not be a subgraph of a generalized coprime graph. Also find out some basic properties, perfectness of the same have been studied. In this aspect we define a new graph and named as non-coprime graph. A non-coprime graph of integers is a graph constructed from an integer set $X = \{1, 2, \dots, n\}$ with $V(G) = X \backslash Y$ where $Y = \{x : gcd(x, y) = 1 \text{ for every } y \in X\}$ and $E(G) = \{(x, y): x, y \in X \text{ and } gcd(x, y) \neq 1\}$ and it is denoted by $\Gamma^{(n)}$. Note that in [11] studied about non-coprime graph of finite group but which is different from non-coprime graph of integers. Once we may easily convert such integers as a graph in this way we can study the relation between graphs in terms of integers.

A (p, q)-graph G is said to be *complete* if and only if every vertices in G are adjacent to every other vertices in G, denoted by K_n. A graph only with vertices and no edges is called an *empty graph* and the empty graph with zero vertices is called a *null graph*. A cycle through all the vertices is called a spanning cycle or *Hamiltonian cycle*. The length of the shortest (longest) cycle called as *girth (circumference)* and they simply noted as $gr(G)$

$\mathcal{N}$-Topological Ordered Spaces

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Abstract. The main purpose of the present paper is to introduce new concept, "$\mathcal{N}$-topological ordered spaces". Also we define some of the separation axioms, weakly $\mathcal{N}\varsigma$-T_2-ordered space and $\mathcal{N}\varsigma$-regularly ordered space in $\mathcal{N}$-topological ordered spaces.

INTRODUCTION

Leopoldo Nachbin [4] initiated the study of topological ordered spaces in 1965. The study of bitopological ordered spaces was intrdouced by M.K.Singal and A.R.Singal [5]. Later on Lellis Thivagar et al. [1] initiated the concept of N-topological spaces. Further [2], they introduced and developed some separation axioms in N-topological space. We inspire the results about separation axioms in Bitopological ordered spaces [6]. In this paper, we found a new concept called $\mathcal{N}$-topological ordered space. Throughout this paper, $(X,\mathcal{N}\varsigma,\leq)$ is called $\mathcal{N}$-topological ordered spaces. More specifically, we define some separation axioms and some of the properties has been studied.

PRELIMINARIES

Definition .1 [1] Let X be a non-empty set, $\tau_1,\tau_2,.....,\tau_N$ be N-arbitrary topologies defined on X and let the collection $N\tau$ be defined by
$N\tau = \{S \subseteq X : S = (\cup_{i=1}^{N} A_i) \bigcup (\cap_{i=1}^{N} B_i), A_i, B_i \in \tau_i\}$
satisfying the following axioms:
(i) $X, \emptyset \in N\tau$.
(ii) $\bigcup_{i=1}^{\infty} S_i \in N\tau$ for all $S_i \in N\tau$.
(iii) $\bigcap_{i=1}^{n} S_i \in N\tau$ for all $S_i \in N\tau$.
Then the pair $(X, N\tau)$ is called a *N-topological space* on X and the elements of the collection $N\tau$ are known as *$N\tau$-open sets* on X. A subset A of X is called *$N\tau$-closed* on X if the complement of A is $N\tau$-open on X. The set of all $N\tau$-open sets on X and the set of all $N\tau$-closed sets on X are respectively, denoted by $N\tau O(X)$ and $N\tau C(X)$.

Definition .2 [1] A subset A of an N-topological space $(X, N\tau)$ is called an *$N\tau$-neighbourhood* of a point $x \in X$ if there exists an $N\tau$-open set U such that $x \in U \subset A$.

Definition .3 [1] A function $f : (X, N\tau) \to (Y, N\tau)$ is said to be *$N\tau$-irresolute* if $f^{-1}(V)$ is $N\tau$-open set in X for every $N\tau$-open set V of Y.

Definition .4 [6] A set which is both open and closed in an bitopological space is called an *clopen set*. By a proper clopen set of an topological space, we mean clopen set $A \neq \emptyset, X$.

Definition .5 [7] A Subset A of an topological ordered space $(X, \tau, \leq)$ is said to be *increasing* if $A = \{x \in X : a \leq$ x for some $a \in A\}$, that is, if $A = \cup_{a \in A}[a, \to]$, where $[a, \to] = \{x \in X : a \leq x\}$.

Definition .6 [7] A Subset A of an topological ordered space $(X, \tau, \leq)$ is said to be *decreasing* if $A = \{x \in X : x \leq a$ for some $a \in A\}$, that is, if $A = \cup_{a \in A}[\to, a]$, where $[\to, a] = \{x \in X : x \leq a\}$.

Definition .7 [5] A bitopological ordered space $(X, \tau_1, \tau_2, \leq)$ is said to be *upper* (respectively *lower*) pairwise T_1-*ordered* if for $a, b \in X$ such that $a \not\leq b$ (that is, a is not related to b) in X, there exists a decreasing (respectively increasing) τ_1-neighbourhood or a τ_1-neighbourhood V containing b(respectively a) such that $a \notin U$(respectively $b \notin U$). $(X, \tau_1, \tau_2, \leq)$ is said to be pairwise *T_1-ordered* if it is both lower and upper pairwise T_1-ordered.

Advances in Applicable Mathematics - ICAAM2020
AIP Conf. Proc. 2261, 030022-1–030022-5; https://doi.org/10.1063/5.0016824
Published by AIP Publishing. 978-0-7354-2021-2/$30.00

On Weakly η- regular Closed Sets in Generalized Topological Spaces

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Abstract

In this paper, we introduce a weak form of η-regular closed sets namely weakly η-regular closed sets (briefly, wηr-closed) in generalized topological space. Also we discuss some of its properties. Further we introduce three types of continuous functions using wηr-closed sets and characterise them.

Keywords: *η-regular closed, wηg-sets. (η,δ)continuous functions*

AMS Subject classification: 54A05, 54C08

I. INTRODUCTION

In 2014, Ankit Gupta et el [1] given some decompositions of regular open sets and regular closed sets using PS-regular sets in topological spaces. In 2015, Syed Ali Fathima [6] introduced wηg-closed sets in GTS which is also the weak form the regular closed sets. The purpose of the present paper is to introduce weakly η regular closed sets and different types of continuous function using wηr- closed sets in GTS and discuss their basic properties.

II. PRELIMINARIES

Throughout this paper X,Y and Z means generalized topological space (X,η), (Y,δ) and (Z,Ɛ) respectively on which no separation axioms are assumed unless otherwise explicitly mentioned. The function f:X→Y denote the single valued function of space (X,η) into a space (Y,δ). We recall the following definitions.

Definition 2.1. A generalized topology or simply GT η [3] on a nonempty set X is a collection of subsets of X such that $\phi\in\mu$ and μ is closed under arbitrary union. Elements of η are called η-open sets. A subset A of X is said to be η-closed if A^c is η-open. The pair (X,η) is called a generalized topological space (GTS). If A is a subset of X, then $C_\eta(A)$ is the smallest η-closed set containing A and $i_\eta(A)$ is the largest η-open set contained in A. A space (X,η) is said to be strong if $X\in\eta$.

Definition 2.2. A subset A of X is called a η- generalized closed set [2](briefly ηg-closed set= g_η-closed[5]) iff $C_\eta(A)\subseteq U$ whenever $A\subseteq U$ where U is η-open in X.

Definition 2.3. Let (X,η) be a GTS and $A\subseteq X$. Then A is said to be η-regular closed [4] if $A=C_\eta i_\eta(A)$.

Definition 2.4. A subset A of X is called a PS – regular [1] if $A = i_\sigma C_\sigma(A)$

Definition 2.5. A function f:X→Y is said to be

(i) (η,δ)continuous functions [3] if $f^{-1}(U)$ is η-open in X for every δ-open set U of Y.

(ii) (η, Wηg-δ) continuous functions [8] if $f^{-1}(U)$ is η – open in X for every Wηg – open set U of Y.

Orientable and Non-Orientable Genus of the Intersection Power Graph of Finite Groups

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Abstract. The intersection power graph $\Gamma_I(G)$ of a group G is defined as follows: take G as vertex set and two distinct vertices x and y are adjacent in $\Gamma_I(G)$ if there exists a non-identity element $z \in G$ such that $x^m = z = y^n$, for some $m, n \in N$ and e is adjacent to all other vertices, where e is the identity element of the group G. In this paper, certain finite groups whose intersection power graphs can be embedded on the torus or projective plane are classified.

Keywords: genus, crosscap, intersection power graph
2010 Mathematics Subject Classification: Primary 05C25, Secondary 20B05, 20F65

INTRODUCTION

Algebraic combinatorics is an area of mathematics which employs methods of abstract algebra in various combinatorial contexts and vice versa. Associating a graph to an algebraic structure is a research subject. This area has attracted considerable attention. One such construction is the intersection power graph of a group introduced by Sudip Bera in 2018. In [1], Sudip Bera defined the intersection power graph of a group G as follows: take G as vertex set and two distinct vertices x and y are adjacent in $\Gamma_I(G)$ if $\langle x \rangle \cap \langle y \rangle \neq \{e\}$ and e is adjacent to all other vertices, where e is the identity element of the group G. Characterization of algebraic structure with respect to the orientable (non-orientable) genus of its corresponding graph is one of the hottest research topics in the last two decades. One can refer [5], [6], [7], [8], for such studies. In this paper, we present results concerning the orientable and non-orientable genus of the intersection power graph of finite groups.

SOME PRERUDIMENTS

In the following, we briefly follow some notation and terminology from [2], [3] and [4]. We denote the group of integers module n by $\mathbb{Z}_n$. Also, we denote the dihedral group by D_{2n}, where $n \geq 1$. By a graph $G = (V, E)$, we mean an undirected simple graph with vertex set V and edge set E. A graph in which each pair of distinct vertices is joined by the edge is called a *complete graph*. We use K_n to denote the complete graph with n vertices. A graph G is *planar* if it can be drawn in the plane so that its edges intersect only at their ends. For non-negative integers n and k, let S_n denote the orientable sphere with n handles and N_k denote a non-orientable sphere with k crosscaps attached to it. It is well-known that each connected compact surface is homeomorphic to S_n or N_k for some non-negative integers n and k. The *genus* of a graph G, denoted by $\gamma(G)$, is the minimum integer n such that the graph can be embedded in S_n. Similarly, *crosscap* (non-orientable genus) of a graph G, denoted by $\overline{\gamma}(G)$ is the minimum integer k such that G can be embedded in N_k. A graph G is called planar if $\gamma(G) = 0$ and toroidal if $\gamma(G) = 1$. Moreover, a non-orientable genus one graph is called a projective graph. Note that if H is a subgraph of a graph G, then $\gamma(H) \leq \gamma(G)$ and $\overline{\gamma}(H) \leq \overline{\gamma}(G)$. For details on the notion of embedding of graphs in a surface, we refer to White [9]. We state the following results for the subsequent sections.

Theorem .1. *[1] Let G be a group of order 2^r, $r \in N$. Then the intersection power graph $\Gamma_I(G)$ is planar if and only if $o(a) \leq 4$, for all $a \in G$ and $\langle a_1 \rangle \cap \langle a_2 \rangle = \{e\}$, where $\langle a_1 \rangle$ and $\langle a_2 \rangle$ are two distinct cyclic subgroups of G order 4.*

Theorem .2. *[1] Let G be a group of order 3^k, $k \in N$. Then the intersection power graph $\Gamma_I(G)$ is planar if and only if $o(a) = 3$, for all $a \in G - \{e\}$.*

Advances in Applicable Mathematics - ICAAM2020
AIP Conf. Proc. 2261, 030027-1–030027-8; https://doi.org/10.1063/5.0016842
Published by AIP Publishing. 978-0-7354-2021-2/$30.00

Palpable Analysis of Two Phase Perfect Secret Sharing Scheme on Polygonal Edge Sum Graph

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***Abstract*In this paper, we will probe how polygonal sum labelling of T(n,n-1) graph can be used to construct two phase secret sharing scheme based on a graph access structure to obtain a novelty in a secret sharing scheme .**
Mathematics Subject Classification: 05C78
***Keywords:* polygonal sum graph labelling, two phase secret sharing**

I INTRODUCTION

All the graphs considered here are finite and undirected. The terms not defined here are used in the sense of Harary [6] *A graph labeling* is an assignment of integers to the vertices or edges or both subject to certain conditions . If the domain of the mapping is the set of vertices (or edges) then the labeling is called a vertex labeling (or an edge labeling)By a (p,q) graph G , we mean a graph G = (V,E) with $|V|$ = p and $|E|$ = q .Most graph labeling methods are originated from Rosa's findings of the year 1967. Labelled graph has many branch out applications such as coding theory, missile guidance, X-ray, crystallography analysis, communication network addressing systems, astronomy, radar, circuit design, database management etc., Frank Harary[7] introduced the sum graph of a set S of positive integers as the graph $G^+(S)$ having S as its node set , with two nodes adjacent whenever their sum is in S . Then in 1994 Frank Harary [7] introduced sum graphs over all the integers so that S may contain positive or negative integers or zero .A graph obtained is called an integral sum graph . Polygonal Sum Labeling of paths was proposed by S.Murugesan[12] et al. Sum graph labeling offers a new method for defining graphs and for storing them digitally . To record a graph on a computer, the edges are usually stored either in the form of an adjacency matrix or as a linked list. Using sum graph labelling we only need to store the set of vertices, together with some additional isolates, if needed .While previously the edges in a graph were specified explicitly, using sum graphs, edges can be specified implicitly. Mirka Miller[11] et al proposed Sum graph based access structure in a secret sharing scheme. Massound Hadian Dehkordi [10]et al proposed the complexity of the connected graph access structure on seven participants .Adi Shamir [1] showed methods to share a secret . Ernest F. Brickell and David M. Davenport[5] have constructed an ideal secret sharing scheme based on matroid theory

II PRELIMINARIES

Definition 2.1:[12]A (p,q) graph G is said to admit a polygonal edge sum labelling if its vertices can be labelled by even integers such that the induced edge labels obtained by the sum of the labels of the end vertices are the first q polygonal numbers

Definition 2.2: [11]A *secret sharing scheme* is a method which allows a secret K to be shared among a set of participants P in such a way that only qualified subsets of participants can recover the secret. The family of all authorised subsets of participants is called an *access structure*.

Definition 2.3: [11]A secret sharing scheme is called *perfect* if it is not possible for an unauthorised subset of participants to obtain any information about the secret.

Definition 2.4: [11]Let the set of participants be denoted by P. The value of the secret K is chosen by the dealer, denoted by D, who is a special participant not in P. When D wants to share the secret K among the participants in P, D gives each participants in P, some partial information called a share.

Definition 2.5:[11] The *information rate of a secret sharing scheme* is the ratio between the number of bits needed to express the secret key and the overall maximum number of bits needed to express each share. Information rate is usually used to measure the efficiency of a system. The information rate is denoted by the symbol ρ. Thus $\rho = \frac{the\ size\ of\ the\ secret\ in\ bits}{\max(\ the\ size\ of\ a\ share\ in\ bits\ )}$

Punjab University Journal of Mathematics
(ISSN 1016-2526)
Vol. 52(10)2020) pp.47-53

Further Results on Intersection Power Graph of Finite Groups

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Received: 23 June, 2020 / Accepted: 11 September, 2020 / Published online: 05 October, 2020

Abstract.: Let G be a finite group with identity element e. The intersection power graph $\Gamma_{IP}(G)$ of G is the undirected graph whose vertex set is the elements of G and two distinct vertices a, b are adjacent in $\Gamma_{IP}(G)$ if there exists a non-identity element c such that $a^p = c = b^q$ for two positive integers p, q and e is adjacent to all other vertices of $\Gamma_{IP}(G)$. In the present paper, we determine some finite groups whose intersection power graphs having book thickness at most two. Also, we attain a lower bound for $\alpha_0(\Gamma_{IP}(G))$.

AMS (MOS) Subject Classification Codes: 05C25; 20A05
Key Words: Unicyclic, Book thickness, Independence number, Finite groups, Intersection power graph.

1. INTRODUCTION

All groups considered in this paper will be finite. The *undirected power graph* of a finite group G has the vertex set G and two distinct elements are adjacent if one is a power of the other. In 2000, Kelarev and Quinn [8] introduced the concept of a power graph. In 2009, Chakrabarty, Ghosh and Sen [6] introduced the concept of undirected power graph. Recently, many interesting results on power graphs have been obtained, see [1, 5, 6, 9, 10].

Scheduling a Triple Split Round-Robin Tournament using Independent Edge Domination

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Abstract: In this paper work, we wish to Schedule Triple Split Round -Robin Tournament with the help of graph using independent edge domination.
Keywords: Round-Robin, Domination, edge domination.

INTRODUCTION

Domination in graphs is the most interesting area for many researchers in graph theory all over the world. The concept of domination can be applied to form various Mathematical models for practical problems. Sports tournament are main economic activities around the world. They draw attention of millions of people around the globe. The broadcasters and organizer invest a lot of money in sports events. The schedule is the main aspect of the tournament.

A **round-robin** is a sports competition in which each player or team plays against every other player or team. When a round robin format is desirable but the number of entries is too large, splitting the entries into divisions which have same number of players or teams. A **triple split round- robin** is a round robin whose teams or players divided into three divisions which have same number of players or teams such that each player or team in a division should play with all other player or team in other two divisions. In this paper work, we wish to Schedule a Triple Split Round -Robin Tournament with the help of graph using independent edge domination.

Definition

A **graph** is an ordered pair G = (V, E) where V is the vertex set and E is the edge set. A **complete graph** is a graph in which each pair of graph vertices is connected by an edge. A complete graph with n vertices denoted by 'K_n' is a graph with n vertices in which each vertex is connected to each of the others. A set D of vertices in a graph G = (V, E) is called a **dominating set** of G if every vertex in V – D is adjacent to some vertex in D. The cardinality of minimum dominating set is called domination number it is denoted by γ (G). A set F of edges in a graph G = (V,E) is called an **edge dominating set** of G if every edge in E – F is adjacent to at least one edge in F and is an **independent edge dominating set** if edges are independent.

SCHEDULING A TRIPLE SPLIT ROUND-ROBIN TOURNAMENT

Triple split round robin tournament teams scheduling using independent edge domination

The triple split round robin tournament can be schedule using independent edge dominating method. For 6 teams (2 teams in each division) and 9 teams (3 teams in each division), it is easy to schedule triple split round robin tournament using trial and error method. For 12 teams (4 teams in each division) it can be schedule but it takes more time. However, scheduling for 15 teams (5 teams in each division), using an exhaustive search could take many

Advances in Applicable Mathematics - ICAAM2020
AIP Conf. Proc. 2261, 030071-1–030071-5; https://doi.org/10.1063/5.0016833
Published by AIP Publishing. 978-0-7354-2021-2/$30.00

Univariate Time Series Models For Fuel Price

M. Sulaiga Beevi , K. Senthamarai Kannan , S. Syed Ali Fathima

Abstract: any of the researcher, economist and a businessman currently exists interested in estimating the future of population, prices, national income etc. Accuracy of the future forecasts depends to a large extent on the success or failure. Hence the analysis of time series assumes just as great importance in the study of every single one economic problems.Here many methods are currently available in the literature to solve the problem of prediction. This study provides a detailed comparison of Fuzzy Time Series (FTS), Double Exponential Smoothing (DES) model and Auto Regressive Integrated Moving Average (ARIMA) model. Future values currently are forecasting using FTS, DES and ARIMA model. Forecasted values for Mean Square Error (MSE), Root Mean Square (RMSE), and Mean Absolute Percentage Error (MAPE) are calculated individually for all the three methods.

Index Terms : Fuzzy Time Series, Double Exponential Smoothing, ARIMA and Forecasting.

1 INTRODUCTION

Fuel price analysis to forecasting have an enormous worth for many professionals in the fields of finance. A significant part of the study currently exist the range of a suitable possibility form of the data. Analysis of Time series more essential in various fields of research, such as business, economics, medicine… etc. descriptive analysis, spectral analysis, forecasting, and explanative analysis carry out different goals. Nowadays several methods of forecasting first one is traditional (ARMA, ARIMA, SARIMA, Smoothing method, Holt-winters, etc), and other one is computational intelligence (neural networks, LSTM, etc). First one is finding the analysis used by statistical tool. Another one is computational tool.[1] R. G. Brown (1959)writing a book for Statistical Forecasting for Inventory Control, this book contains classical time series models. [2]L.Broze and G.Meland (1990) proposed to estimate some maximum likelihood of Exponential smoothing data. [3]C.Chat field and m.yar (1991) finding and prediction of intervals for multiplicative Holt's winter's methods. [4]Song and chissom (1993) proposed mamadani's method to compute fuzzy relation to evaluate the difference between the traditional time series along with fuzzy time series. [5]Song and chissom (1994) separate universe of discourse in to seven same lengths of intervals by max-min composition defuzzification of the output. Song and chissom take the applied fuzzy time series model to the forecast Enrollments University for Alabama, where that first-order invariant model is developed and that step-by Stepped procedure is provide further the researcher [6]chen (1996) used new model of max-min composition procedure with new less complexes followed by used max-min composition. Chen's algorithm has some drawbacks, specifically not considering the existence of duplication in addition to the absence of weighting which currently exists receiving lesser in the longer the observation. Some people followed by tried to improve chen's algorithm. According to[6] cheng, et al (1996), the differences in these methods currently are create the steps of fuzzy set pattern in addition to there currently are weights in all group of fuzzy relations.

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[7]T. M. J. A. Cooray (2008) writing a book about Applied Time Series Analysis and Forecasting, in this book contain various forecasting methods.[8]Wang (2011) proposed a comparison method of forecasting by fuzzy time series in addition to arima model. For this object over here purpose, they have used the data related to the taiwan export data. [9]Yun – sheng hsu et al., (2011) discussed usual methods of forecasting in addition to heuristics model of forecasting in addition to then compare the two methods. [10]Niyimbanira(2015) examine between fuel price , Exchange rate ,New vehicle sales in south Africa.He compare two models one is Mathematical (cointegration) other one is econometric model (VAR) model. Econometric model produced a better solution. [11]Hansun (2016) proposed a new approach of brown's double exponential smoothing in time series analysis. The new approach merge the calculation of weighting factor in weighted moving average in addition to execute the results with brown's double exponential smoothing method. The proposed method tested on jakarta stock exchange composite index data. [12]Edward and Manoj (2016) proposed ARIMA two sector analysis model. They were used stock price of Automobile sector and partitioned in to two sector first one is 70% observations used to model development remaining 30% confirmation accuracy of the model developed. [13]Tularam and Saeed (2016) comparing different time series for oil prices one is ARIMA and other one is Holt-Winter Exponential smoothing. They were used Mat lab (R2014a) software used for forecasting. The ARIMA (2, 1, 2) provided more accurate than other models. [14] Tsai M-C, Cheng C-H et al., (2018) proposed a hybrid time-series model based on a feature selection method for forecasting the leading industry stock prices. They proposed stepwise regression is first adopted, and multivariate adaptive regression and kernel ridge regression used to select the key features. And then construct the forecasting model by a genetic algorithm to optimize the parameters of support vector regression and then evaluate the forecasting performance of the proposed models, this study collects five leading enterprise datasets in different industries from 2003 to 2012. K.Senthamarai Kannan et al., disgusted a method for Comparison of Fuzzy Time Series and ARIMA model for this purpose they have used the data set related to the daily petrol price.

2. MATERIALS AND METHODS

2.1 DATA SOURCE

The data on daily Prices for petrol have been collected from the web sites https://www.iocl.com/home.aspx for the period from 22st November, 2018 to 11th November, 2019 All the Procedures and Methods adopted in[1][4][5][6][7][15].

Malaya Journal of Matematik, Vol. 8, No. 4, 1912-1915, 2020

https://doi.org/10.26637/MJM0804/0096

Some salient feature of topological simple ring

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Abstract

In this paper, we manifest the distinct feature of topological simple ring. A topological simple ring has the algebraic structure of ring and topological structure of a topological space. Further we provide a view of some basic results and theorem related to topological simple.

Keywords

Topological space, Continuous function, Topological ring, topological simple ring, ideals.

AMS Subject Classification

54Hxx, 54C05.

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Article History: Received **15** August **2020**; Accepted **09** October **2020**

Contents

1. Introduction

This paper attributes the concept of topological simple ring. Also here we elucidate some examples and basic results related to topological simple ring.

The concept of topological ring was introduced by D.Van Dantzig and N.Jacobson introduced the totally disconnected locally compact ring and Kalpanasy introduced the compact ring . Later the concept of topological ring was developed and studied by S. Warner[6]. Koteswara Rao introduced the topological 3-ring.

2. Preliminaries

In this section, we recall some definitions and basic results of Topology and algebra which will be used throughout the paper.

Definition 2.1. *[3] A topology on a set X is a collection T of subsets of X having the following properties*
(i) ϕ and X are in T
(ii)The union of the elements of any subcollection of T is in T
(iii)The intersection of the elements of any finite subcollection of T is in T .
A set X for which a topology T has been specified is called a topological space.

Definition 2.2. *[3] A subset U of X is an open set of X if U belongs to the collection T .The complement of open set is called closed set.*

Definition 2.3. *[3] Let X and Y be topological space. A function $f : X \to Y$ is said to be continuous if for each open subset V of Y, the set $f^{-1}(V)$ is an open subset of X.*

Definition 2.4. *[3] Let X and Y be the topological space; let $f : X \to Y$ be a bijection. If both the function f and the inverse function $f^{-1} : Y \to X$ are continuous, then f is called a homeomorphism.*

Definition 2.5. *[6] A topology T on a ring A is a ring topology and A furnished with T is a topological ring if the following conditions hold*
(i)$(x,y) \to x+y$ is continuous from $A \times A \to A$
(ii) $x \to -x$ is continuous from $A \to A$
(iii)$(x,y) \to xy$ is continuous from $A \times A \to A$.

Strong Domination Polynomials of Queen Crown Graph

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Abstract **----**Let G=(V,E) be a simple graph. A set S ⊆ V is called a dominating set if every vertex v ∈V is either a member of S or adjacent to a member of S. A set S ⊆ V is a Strong dominating set of G if for every vertex v ∈ V-S there exists a u ∈ S such that uv ∈ E and deg(u) ≥ deg(v). Let $\mathbf{Q_{m,n}}$ be a Queen crown graph which is obtained from two null graphs of order zero and taking one copy of null graph G_1 with m vetices , m ≥3 and another copy of null graph G_2 with n=2 vertices (that should be fixed) then joining the vertex of G_1 with an edge to every vertex of G_2 . Let $Sd(\mathbf{Q}^{j}_{m,n})$ be the family of strong dominating set of Queen crown graph with number of elements in the set j and let $Sd(\mathbf{Q_{m,n}}, j) = |\mathbf{Sd}(\mathbf{Q}^{j}_{m,n})|$.In this paper we establish $\mathbf{Q_{m,n}}$ and obtain a iterative formula for $Sd(\mathbf{Q}^{j}_{m,n})$ .Using this iterative formula we consider the polynomial for SD $(\mathbf{Q_{m,n}}, \mathbf{x}) = \sum_{j=1}^{m+n-1}\left[\binom{m+n-1}{j} - \binom{m+n-2}{j}\right]x^{j+1}$ Also we have determine several properties of polynomials on Queen crown graphs.

Keywords — *Strong dominating set , Strong domination polynomial , Queen crown graph*

I. INTRODUCTION

Let G = (V, E) be a bipartite graph of order |V| = m+n A set S ⊆V $is called a dominating set if every vertex v ∈ V is either a member of S or adjacent to a member of S. A set S ⊆ V is a Strong dominating set of G if for every v ∈ V – S , there u∈ S such that uv ∈ E and deg (u) ≥ deg (v). The minimum cardinality of Strong dominating set is called minimum Strong domination number and is denoted by $\gamma_{sd}(G)$. Alkhani and Peng[1][2] found the dominating sets and domination polynomial of cycles and certain graphs.Gehet, Khalf and Hasni found the dominating set and domination polynomial of stars and wheels[3][4]..Angelin and Robinson found the weak dominating sets and weak domination polynoimal of complete graphs [5].Let H_m be a graph with order m and let H^{j}_{m} be the family of dominating sets of a graph H_m with the number of elements in the set j and let d (H_m, j) =$|H_j|$.We call the polynomial $D(H_m,x)=\sum_{j=\gamma(G_j)}^{n} \mathbf{d}(\mathbf{H_m}, \mathbf{j})\mathbf{x}^{\mathbf{j}}$ the domination polynomial of graph G[2].Let $\mathbf{Q_{m,n}}$ be a Queen crown graph which is obtained from two null graphs of order zero and taking one copy of null graph G_1 with m vetices , $m \geq 3$ and another copy of null graph G_2 with n=2 vertices (that should be fixed) then joining the vertex of $G_1$with an edge to every vertex of G_2.Let $Sd(Q^{j}_{m,n})$ be the family of strong dominating set of Queen crown graph with number of elements in the set j and let $Sd(\mathbf{Q_{m,n}}, j)=|Sd(Q^{j}_{m,n})|$. We call the polynomial $SD(\mathbf{Q_{m,n}}, x) = \sum_{j=1}^{m+n-1}\left[\binom{m+n-1}{j} - \binom{m+n-2}{j}\right]x^{j+1}$ the strong domination polynomial of Queen crown graph. In the next section we establish the families of strong dominating sets of $\mathbf{Q_{m,n}}$ with the number of elements in the set j by the families of strong dominating sets of $Q_{m-1,n}$ with number of elements j and j-1. We explore the strong domination polynomial of Queen crown graphs in section 3.As usual we use $\binom{n}{i}$or nC_i for the combination n to i and we denote the set {1, 2, …, n} simply by [n], and we denote deg (u) to degree of the vertex u and let

$\Delta(G) = \max\{\deg(u) : \forall u \in V(G)\}$ and

$\delta(G) = \min\{\deg(u) : \forall u \in V(G)\}$

II. STRONG DOMINATING SETS OF QUEEN CROWN GRAPH

Let $Q_{m,n}$, m ≥ 3$ and n=2 be the Queen Crown graph with (m+2) vertices, $V[Q_{m,n}]=[m+n]$ and $E[Q_{m,n}]=\{(u,v) : \text{forall } u \in G_1 \text{ and } v \in G_2\}$.Let $(Q^{j}_{m,n})$ be the family of strong dominating sets of $Q_{m,n}$ with the number of elements 'j'. We shall explore the strong dominatings sets of Queen crown graph :.

ADV MATH SCI JOURNAL
Advances in Mathematics: Scientific Journal **9** (2020), no.5, 2467–2476
ISSN: 1857-8365 (printed); 1857-8438 (electronic)
https://doi.org/10.37418/amsj.9.5.1o

STRONG FUZZY BI-IDEALS OF BCK-ALGEBRAS

S. FIRTHOUS FATIMA[1] AND M. DHIVYA

ABSTRACT. We consider the strong fuzzification of the concept of sub-algebras and strong Bi-ideals in BCK - algebras are defined and explored some of their properties. We also fuzzify the notion of equivalence relations on the family of all strong fuzzy Bi-ideals of a BCK-algebras are discussed and some of the properties are investigated.

1. INTRODUCTION

After the initiation of the concept of fuzzy set by Zadeh in [5], Imaiand Iseki introduced two classes of abstract algebras, BCK-algebras and BCI-algebras. BCK-algebras where studied by many researches.

In this paper, using the Atanassov, [1], and Young Bae Jun, [2] we establish the notion of equivalence relations on the family of all strong fuzzification of the concept of sub-algebras and strong fuzzy Bi-ideals of a BCK-algebra and investigate some of the properties.

2. PRELIMINARIES

The following definition is given in [3].

Definition 2.1. *A BCK-algebra is a non-empty set X with a binary operation $*$ and a constant 0 satisfying the following condition:*

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2010 *Mathematics Subject Classification.* 54A40.

Key words and phrases. Fuzzy Bi-ideals, Strong Fuzzy Bi-ideals, homomorphism.

An Effect of Eye Check-up Regularity and its Impacts on Glaucoma Severity: An Analytical Study using Structural Equation Modelling

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Abstract: Glaucoma is one of the leading causes of blindness, not only in India, but throughout the world. It can be defined as diseases that affect the optical nerves of the eye causing irreversible damage to the vision in the eye. But many people in India are not aware of the real causes of Glaucoma. Since many people are not aware of this disease, people are completely in dark as to what to do to prevent eye blindness, particularly due to Glaucoma. That is the reason why the present research tried to analyse how regular eye check-up can impact the severity of glaucoma among the patients in India. In order to conduct the present research the researcher has chosen 400 respondents using simple random sampling technique. The study revealed that when people go for regular eye check-ups, the severity of glaucoma decreases.

Keywords: Glaucoma, Eye.

Article History

Received: 16/11/2020; Accepted: 27/12/2020

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Introduction

The second leading cause of blindness worldwide is Glaucoma. It is estimated that twelve million people worldwide are blind due to the disease.1 Primary open angle glaucoma (POAG) is far more prevalent than primary angle-closure glaucoma (PACG) worldwide, with the exception of Asia. In Asia, Chinese and Indian population-based studies have recorded that a large percentage of the population suffers from angle-closure glaucoma. An estimated 28.2 million people in China have angle-closure disease, Foster and Johnson estimated.

Strong Anti S -Fuzzy Bi-ideals of BCK – Algebras

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Abstract- **In this paper, the notion of strong anti S-fuzzy bi-ideal of a BCK-Algebra are introduced and studied. We show that a collection of strong S- fuzzy bi-ideal we established strong anti S-fuzzy bi-ideal of a BCK-Algebra. We also fuzzify α is a strong anti S- fuzzy bi-ideal in X iff the α^c is a strong S- fuzzy bi-ideal in X.The concept of fuzzify strong anti S- fuzzy bi-ideal and strong anti S- fuzzy subalgebra of a BCK-Algebra are introduced some of their properties are investigated.**

Mathematics subject classification: 06F35, 03G25, 94D05

Keywords – Strong S- fuzzy bi-ideal, Strong Anti S-fuzzy bi-ideal, Strong S-fuzzy sub-algebra, Strong Anti S– fuzzy sub-algebra.

I. INTRODUCTION

After the concept of fuzzy sets by Zadeh. These ideas have been applied to other algebraic structures such as semi groups, groups,rings,modules,vector spaces and topologies. In 1990,Biswas defined the concept of anti-fuzzy subgroup of group and how recently Hong and Jun, modifying Biswas idea, applied the idea of BCK-Algebras.

In this paper we introduce Strong S- fuzzy bi-ideal and Strong anti S-fuzzy bi-ideal of a BCK-Algebra. We also fuzzify α is a Strong anti S- fuzzy bi-ideal in X iff α^c is a Strong S-fuzzy bi-ideal in X.We suggest the perception of a Strong anti S-fuzzy bi-ideal and Strong Anti- S fuzzy sub- algebra of a BCK-Algebra and explore some related properties.

II. PRELIMINARIES

Definition2.1:[2] An-algebra we mean a non-empty set X with a binary operation $*$ and a constant 0 satisfying the following condition:

(a) $((x* y) * (x* z) * (z* y)) = 0$

(b) $(x* (x* y)) * y) = 0$

(c) $x* x = 0$

(d) $0* x = 0$

(e) $x* y = 0$ and $y* x = 0$ imply that $x = y$ for all $x, y, z \in X$.

Definition2.2:[6] A partial ordering "$\leq$" on X can be defined by $x \leq y$ iff $x * y = 0$.

Strong Domination Polynomials Of Flower Graph

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Abstract. Let $G=(V,E)$ be a simple graph. A set $S\subseteq V$ is called a dominating set if every vertex $v\in V$ is either a member of S or adjacent to a member of S. A set $S\subseteq V$ is a Strong dominating set of G if for every vertex $v\in V-S$ there exists a $u\in S$ such that $uv\in E$ and $deg(u)\geq deg(v)$. Let Fl_n be a Flower graph which is obtained from helm graph by joining each pendant vertex to the central vertex. Let $Sd(Fl_n^j)$ be the family of strong dominating set of Flower graph with number of elements in the set j and let $Sd(Fl_n,j)=|Sd(Fl_n^j)|$. In this paper we establish Fl_n and obtain a iterative formula for $Sd(Fl_n^j)$.Using this iterative formula we consider the polynomial for

$$SD(Fl_n,x)=\sum_{j=0}^{2n}\binom{2n}{j}x^{j+1}.$$

Also we have determine several properties of polynomials on Flower graphs.

Keywords: Strong Domination,Strong Dominating Polynomial,Flower Graph

Mathematical Classification : 05Cxx, 12D10

INTRODUCTION

Let $G=(V,E)$ be a simple graph of order $|V|=m$ A set $S\subseteq V$is called a dominating set if every vertex $v\in V$ is either a member of S or adjacent to a member of S. A set $S\subseteq V$ is a Strong dominating set of G if for every $v\in V-S$, there $u\in S$ such that $uv\in E$ and $deg(u)\geq deg(v)$. The minimum cardinality of Strong dominating set is called minimum Strong domination number and is denoted by $\gamma_{sd}(G)$. Alkhani and Peng [1, 2] found the dominating sets and domination polynomial of cycles and certain graphs.Gehet, Khalf and Hasni [3, 4] found the dominating set and domination polynomial of stars and wheels.Angelin and Robinson [5] found the weak dominating sets and weak domination polynoimal of complete graphs.

Let H_m be a graph with order m and let H_m^j be the family of dominating sets of a graph H_m with the number of elements in the set j and let $d(H_m,j)=|H_j|$.We call the polynomial $D(H_m,x)=\sum_{j=\gamma(G)}^{n}d(H_m,j)x^j$ [2]the domination polynomial of graph G.

Let Fl_n^j be the family of strong dominating sets of a flower graph Fl_n [6]with the number of elements in the set j and let $Sd(Fl_n,j)=|Fl_n^j|$. We call the polynomial $SD(Fl_n,x)=\sum_{j=0}^{2n}\binom{2n}{j}x^{j+1}$ the strong domination polynomials of flower graph.

In the next section we establish the families of strong dominating sets of Fl_n with the number of elements in the set j by the families of strong dominating sets of Fl_{n-1} with number of elements j and $j-1$.
We explore the strong domination polynomials of Flower graph in section 3.As usual we use $\binom{n}{i}$ or nC_i for the combination n to i and we denote the set $\{1,2,\ldots,n\}$ simply by $[n]$, and we denote deg (u) to degree of the vertex u and let

$\Delta(G)=max\{deg(u):\forall u\in V(G)\}$ and
$\delta(G)=min\{deg(u):\forall u\in V(G)\}$

Advances in Applicable Mathematics - ICAAM2020
AIP Conf. Proc. 2261, 030043-1–030043-6; https://doi.org/10.1063/5.0016918
Published by AIP Publishing. 978-0-7354-2021-2/$30.00

ADV MATH SCI JOURNAL
Advances in Mathematics: Scientific Journal **10** (2021), no.1, 121–128
ISSN: 1857-8365 (printed); 1857-8438 (electronic)
https://doi.org/10.37418/amsj.10.1.12

CONNECTED ANTI-FUZZY EQUITABLE DOMINATING SET IN ANTI-FUZZY GRAPHS

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ABSTRACT. In this paper, the concept of connected anti-fuzzy equitable dominating set is introduced. The connected anti-fuzzy equitable dominating number is obtained and also studied the relationship between the connected anti-fuzzy equitable domination number and anti-fuzzy equitable domination number. Some bounds and interesting results for connected anti-fuzzy equitable dominating set are obtained.

1. INTRODUCTION

The notion of fuzzy set introduced by L. A. Zadeh [8] to represent vagueness mathematically and tried to solve the problems by assigning a particular membership values to every element of a given set. Graph is one of the most suitable ways of representing the relationship between objects. Sometimes there exist uncertainties in the description of the objects or in its relationships or in both which has to be designed as fuzzy graph model. In fuzzy graph, the relation attains only the minimum membership value among the objects. Sometimes, if complexity occurs among the relation, then it may be lead to obtain maximum membership values. For such cases, we can use anti-fuzzy graph models to solve the problems. In 2012, Akram [1] studied the concept of anti-fuzzy structures in fuzzy graphs. R.Seethalakshmi and R. B. Gnanajothi [7] introduced the

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2020 *Mathematics Subject Classification.* 05C62, 05E99, 05C07.

Key words and phrases. anti-fuzzy graph, equitable dominating set, connected anti-fuzzy equitable dominating set.

Design Engineering

ISSN: 0011-9342 | Year 2021
Issue: 8 | Pages: 11776 - 11787

Some Weak Form of Topological Simple Ring

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Abstract

In this paper, we manifest distinct feature of some weak form of topological simple ring which is structurally generalization of topological simple ring. A topological simple ring S has both algebraic and topological structure. Further we provide a view of some basic results and theorem related to semi and regular topological simple ring. Semi-topological simple ring is defined by using semi-open set and semi-continuity introduced by N. Levine[6]. Regular topological simple ring is defined by using almost continuous function introduced by Singal and Singal [8].

Keywords: open sets, semi-open set, regular open sets, homomorphism, topological simple ring.

1. Introduction

D. Van Dantzig introduced the concept of topological simple ring. Later the concept of topological ring was developed and studied by S. Warner [10] and I. Kalpanasy [5] are developed the concept of topological ring .K. Suguna Rao and P. Kotesware Rao [9] introduced topological 3-ring.

2.Preliminaries

Throughout the paper X and Y are topological spaces and Z⊆X. The symbol Z° and $\bar{Z}$ denote interior and closure of Z[7]. In 1963, N. Levine introduced the notion of semi-open sets in the literature of mathematics. A subset Z of a topological space X is said to semi-open if there exists an open set O in X such that O⊆ Z ⊆ $\bar{O}$, or equivalently if Z⊆ $\overline{Z^{\circ}}$. SO(X) denotes the collection of all semi-open sets in X. The complement of a semi-open set is said to be semi-closed.A mapping f: X→Y is semi-continuous if for each open set O in Y, $f^{-1}(O) \in$ SO(X).

ISSN: 0974-5823 Vol. 6 No. 3 December, 2021

International Journal of Mechanical Engineering

Filter in Topological simple ring

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1.Abstract:

A topological simple ring S has the algebraic structure of a ring and topological structure of a topological space. A filter is a power tool both in topology and set theory. Special type of filters called ultrafilters have many useful technical properties. Filters have generalizations called p-filters(filter bases) and filter subbases which appears naturally and repeatedly throughout topology.

Keywords: Filters, p- filters, topological simple ring.

2.Introduction:

This paper attributes the concept of filter on topological simple ring. Also here we elucidate examples and basic results related to a-sequentially converges via filter and p-filter.

The concept of topological ring was introduced by D. Van Dantzig and developed by S. Warner[5] .The concept of topological simple ring[3] was defined and their properties are studied. Connor and Grosse –Erdmann[1] have investigated the impact of changing the definition of the convergence of sequences the structure of sequential continuity of real functions. In this paper, S will always denote a topological simple ring written additively or multiplicatively which satisfies the first axiom of countability. The letter o, p, q denote the sequences o = (o_m), p = (p_m), q = (q_m) …. . of terms of S. s(Sc(S) denote the set of all S - valued sequence and the set of all S - valued convergent sequence of point in S respectively. By a technique of sequential convergence or a technique, we mean an additive or multiplicative function a defined on subring of c_a(S) of s(S) into S. A sequence o = (o_m) is said to be a-convergent to r if o ∈ c_a(S) and a(o) = r. In particular, lim o = $\lim_{m\to\infty} o_m$ the simple ring c(S). A technique a is called regular if every convergent sequence (o_m) is a – convergent with a(o) = lim o. First of all, we recall the definition of a-sequential closure of a subset of S. Let R ⊆ S and r ∈ S. Then r is in a- sequential closure of T if there is a sequence o = (o_m) of points in R such that a(o) = r. We denote a- sequential closure of a set R by $\bar{R}^a$.

We say that a subset R is a-sequentially closed if it contains all of the point in its a-sequential closure (i.e) a subset R of S is a-sequential closed if $\bar{R}^a \subseteq R$. The null set ∅ and the whole space S are a-sequentially closed. It is clear that $\bar{\emptyset}^a = \emptyset$ and $\bar{S}^a = S$ for a regular method a. If a is regular method, then R⊆ $\bar{R} \subseteq \bar{R}^a$ and hence R is a-sequentially closed if and only if $\bar{R}^a = R$. The concept of a filter was introduced by Henri cartan[2] in 1937. In 2002, Preuss[4] has applied filters throughout his book on convenient topology. In 2002, Beattie and Butzmann described non-topological convergence notion in functional analysis. The study of filters is a very natural way to describe convergence in general topological space. More recently filters play a fundamental role in the development of fuzzy spaces which have application in computer science and engineering. Filters are nearly new in topological simple ring to characterize such significant concept as a- sequentially converges.

3.Topological Simple Ring

Definition: 3.1

A topological simple ring S is a simple ring which is also a topological space if the following conditions are satisfied:

(i)for each s, t∈ S and each open neighbourhood L of s-t in S, there exist open neighboourhood J of s and K of t in S such that J-K ⊆ L.

(ii)for each s, t∈ S and each open neighbourhood L of st in S, there exist open neighboourhood J of s and K of t in S such that JK⊆L.

Example :3.2

Let S = $\left\{\begin{pmatrix} a & b \\ c & d \end{pmatrix} | a,b,c,d \in Z_2\right\}$ be a simple ring under addition and multiplication we define a topology on S by T = $\left\{\emptyset, \left\{\begin{pmatrix} 0 & 0 \\ 0 & 0 \end{pmatrix}\right\}, S\right\}$.

Now $S \times S = \left\{\left(\begin{pmatrix} a & b \\ c & d \end{pmatrix}, \begin{pmatrix} a & b \\ c & d \end{pmatrix}\right) | a,b,c,d \in Z_2\right\}$ and

$$\left\{\emptyset, \left\{\left(\begin{pmatrix} 0 & 0 \\ 0 & 0 \end{pmatrix}, \begin{pmatrix} 0 & 0 \\ 0 & 0 \end{pmatrix}\right)\right\}, \left\{\left(\begin{pmatrix} 0 & 0 \\ 0 & 0 \end{pmatrix}, \begin{pmatrix} a & b \\ c & d \end{pmatrix}\right) | a,b,c,d \in Z_2\right\}, \left\{\left(\begin{pmatrix} a & b \\ c & d \end{pmatrix}, \begin{pmatrix} 0 & 0 \\ 0 & 0 \end{pmatrix}\right) | a,b,c,d \in Z_2\right\}, S \times S\right\}$$

. Clearly (i) and (ii) conditions in definition 3.1 are continuous. Therefore (S, +,. T)

4. Filter neighbourhood of identity

In this section, first we introduce a filter in topological simple ring and the following theorem gives necessary and sufficient conditions for a filter to be the filter neighborhoods of identity on S.

Hindawi
Journal of Applied Mathematics
Volume 2021, Article ID 6698815, 8 pages
https://doi.org/10.1155/2021/6698815

Research Article

Frequency Assignment Model of Zero Divisor Graph

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Received 26 October 2020; Revised 9 February 2021; Accepted 19 February 2021; Published 9 March 2021

Academic Editor: Md Sazzad Hossien Chowdhury

Given a frequency assignment network model is a zero divisor graph $\Gamma = (V, E)$ of commutative ring R_η, in this model, each node is considered to be a channel and their labelings are said to be the frequencies, which are assigned by the $L(2, 1)$ and $L(3, 2, 1)$ labeling constraints. For a graph Γ, $L(2, 1)$ labeling is a nonnegative real valued function $f : V(G) \longrightarrow [0,\infty)$ such that $|f(x) - f(y)| \geq 2d$ if $d = 1$ and $|f(x) - f(y)| \geq d$ if $d = 2$ where x and y are any two vertices in V and $d > 0$ is a distance between x and y. Similarly, one can extend this distance labeling terminology up to the diameter of a graph in order to enhance the channel clarity and to prevent the overlapping of signal produced with the minimum resource (frequency) provided. In general, this terminology is known as the $L(h, k)$ labeling where h is the difference of any two vertex frequencies connected by a two length path. In this paper, our aim is to find the minimum spanning sharp upper frequency bound $\lambda_{(2,1)}$ and $\lambda_{(3,2,1)}$, within Δ^2, in terms of maximum and minimum degree of Γ by the distance labeling $L(2, 1)$ and $L(3, 2, 1)$, respectively, for some order $\eta = p^n q, pqr, p^n$ where p, q, r are distinct prime and n is any positive integer.

1. Introduction

Frequency assignment problem is one of the mathematical optimization technique used in wireless communication. The frequency assignment problem (FAP) initially emerged in the 1960s. Today, the wireless telecommunication networks such as mobile network, radio, television broadcasting, satellite, and radar string our world in our palm. The development and innovation on this network become natural, essential, and unavoidable. It is clear that a number of waves produced in one second is known as frequency and is denoted as λ. For various frequencies, we can access different channels. The proximity between the channel frequencies may affect the channel clarity of one another, and at the same time, our objective is to limit the use of resources. Therefore, distance between the channels is a main determinable factor to overcome the interference as well as for a feasible solution. FCA (fixed channel assignment), DCA (dynamic channel assignment), and HCA (hybrid channel assignment) are the different types of FAP models; for further more classification, one can read the literature source [1].

In 1980, Hale introduced this as a vertex colouring problem [2]. Shao et al. proposed "efficient assignment of radio channels to transmitters" in 1982 [3]. The $L(2, 1)$ analogue was first proposed by Griggs and Yeh in 1992 [4], and they discussed $L(2, 1)$ labeling bound for some basic graphs in terms of maximum degree Δ. According to Griggs, for a graph $G(V, E)$, an $L(2, 1)$ labeling is a nonnegative real valued function $f : V(G) \longrightarrow [0,\infty)$ such that $|f(x) - f(y)| \geq 2d$ if $d = 1$ and $|f(x) - f(y)| \geq d$ if $d = 2$ where x and y are any two vertices in V and $d > 0$ is the distance between x and y. The $L(2, 1)$ labeling number of G is the smallest number such that no other label does not exceed that and is denoted by $\lambda = \lambda(G)$. The canonical generalization of $L(2, 1)$ labeling is $L(h, k)$ labeling where h is the difference of any two vertex frequencies connected by a two length path and $\lambda_{(h,k)}$ is the minimum spanning labeling number.

Turkish Journal of Computer and Mathematics Education Vol.12 No.9 (2021),929-933
Research Article

$(\in\gamma, \in\gamma \vee q\delta)$ - Fuzzy Bi-Ideals of Near-Rings

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Article History: Received: 10 January 2021; Revised: 12 February 2021; Accepted: 27 March 2021; Published online: 20 April 2021

Abstract: In this paper, we introduced the concept of $(\in_\gamma, \in_\gamma \vee q_\delta)$ - fuzzy bi-ideals and $(\bar{\in}_\gamma, \bar{\in}_\gamma \vee \bar{q}_\delta)$ - fuzzy bi-ideals of a near-ring. Some new characterizations are also given. In particular, homomorphic behaviour of $(\in_\gamma, \in_\gamma \vee q_\delta)$ - fuzzy bi-ideals are also discussed. New type of fuzzy bi-ideals of near rings is also introduced.

Keywords: Near-ring, $(\in\gamma, \in\gamma \vee q\delta)$ - fuzzy ideal, $(\in\gamma, \in\gamma \vee q\delta)$ - fuzzy bi-ideal, homomorphism, $(\bar{\in}\gamma, \bar{\in}\gamma \vee \bar{q}\delta)$ - fuzzy bi-ideal. Subject Classification: 16Y30, 03E72

1. Introduction

A new type of fuzzy subgroup , that is , the $(\in, \in \vee q)$ –fuzzy sub group, was introduced by Bhakat and Das[2] using the combined notions of "belongingness" and "quasicoincidence" of fuzzy points and fuzzy sets. In fact, the $(\in, \in \vee q)$ - fuzzy sub group is an important generalization of Rosenfeld's fuzzy subgroup. It is now natural to investigate similar type of generalizations of the existing fuzzy subsystems with other algebraic structures, see[3, 4, 10-12, 14].In [3], Davvaz introduced the concepts of $(\in, \in \vee q)$ - fuzzy subnear-rings (ideals) of near-rings and investigated some of their related properties. Zhan[11] considered the concept of $(\bar{\in}, \bar{\in} \vee \bar{q})$ - fuzzy subnear-rings (ideals) of near-rings and obtained some of its related properties. Finally, some characterizations of $[\mu]_t$ by means of $(\in, \in \vee q)$ - fuzzy ideals were also given. Zhan and Yin[14] redefined generalized fuzzy subnear-rings (ideals) of near-ring and investigated some of their related properties. Zhan and Yin [15] also introduce $(\in_\gamma, \in_\gamma \vee q_\delta)$ - fuzzy subnear-rings (ideals) of a near-rings.

In this paper, the concept of $(\in_\gamma, \in_\gamma \vee q_\delta)$ - fuzzy bi-ideals, $(\bar{\in}_\gamma, \bar{\in}_\gamma \vee \bar{q}_\delta)$ - fuzzy bi-ideals of a near-rings is given with its equivalent conditions. We give the relationship between $(\in_\gamma, \in_\gamma \vee q_\delta)$ - fuzzy bi-ideals and crisp ideals of near-rings. The homomorphism in $(\in_\gamma, \in_\gamma \vee q_\delta)$ - fuzzy bi-ideals of a near-rings is also discussed with its related properties. Also we introduce new type of fuzzy bi-ideals of a near-rings.

2. Preliminaries

Definition 2.1: A non-empty set R with two binary operations "+" and "." is called a left near-ring if it satisfies the following conditions:

1. (R, +) is a group,
2. (R, .) is a semigroup,
3. x.(y+z) = x.y +x.z, for all x, y, z ∈ R.

We will use the word "near-ring" to mean "left near-ring" and denote xy instead of x.y.

Definition 2.2: [5] A subgroup B of R is said to be a bi-ideal if BNB ⊆ B

Note 2.3: [15] A fuzzy set μ of R of the form

$$\mu(y) = \begin{cases} t(\neq 0) & \text{if } y = x, \\ 0 & \text{if } y \neq x, \end{cases}$$

is said to be a fuzzy point with support x and value t and is denoted by x_t .A fuzzy point x_t is said to belong to (resp., be quasi-coincident with) a fuzzy set μ, written as $x_t \in \mu$ (resp., $x_t\, q\, \mu$) if $\mu(x) \geq t$ (resp., $\mu(x) + t > 1$). If $x_t \in \mu$ or $x_t\, q\, \mu$, then, we write $x_t \in \vee q\mu$. If $\mu(x) < t$ (resp., $\mu(x) + t \leq 1$) then, we call $x_t \bar{\in} \mu$ (resp., $x_t \bar{q} \mu$). We note that the symbol $\overline{\in \vee q}$ means that $\in \vee q$ does not hold.

Result 2.4: [15] Let $\gamma, \delta \in [0,1]$ be such that $\gamma < \delta$ .For a fuzzy point x_r and a fuzzy set μ of R, we say that

1. $x_r \in_\gamma \mu$ if $\mu(x) \geq r > \gamma$.
2. $x_r\, q_\delta\, \mu$ if $\mu(x) + r > 2\delta$.
3. $x_r \in_\gamma \vee q_\delta \mu$ if $x_r \in_\gamma \mu$ or $x_r\, q_\delta\, \mu$.

Definition 2.5: [15] A fuzzy set μ of R is called an $(\in_\gamma, \in_\gamma \vee q_\delta)$ -fuzzy subnear-ring of R if for all $t, r \in (\gamma, 1]$ and x, y, a ∈ R

i)a) $x_t \in_\gamma \mu$ and $y_r \in_\gamma \mu$ imply $(x+y)_{t \wedge r} \in_\gamma \vee q_\delta \mu$,

b) $x_t \in_\gamma \mu$ implies $(-x)_t \in_\gamma \vee q_\delta \mu$,

ii) $x_t \in_\gamma \mu$ and $y_r \in_\gamma \mu$ imply $(xy)_{t \wedge r} \in_\gamma \vee q_\delta \mu$,

Moreover, μ is called an $(\in_\gamma, \in_\gamma \vee q_\delta)$ -fuzzy ideal of R if μ is $(\in_\gamma, \in_\gamma \vee q_\delta)$ -fuzzy subnear-ring of R and

iii) $x_r \in_\gamma \mu$ implies $(y + x - y)_r \in_\gamma \vee q_\delta \mu$,

iv) $y_r \in_\gamma \mu$ and x ∈ R imply $(xy)_r \in_\gamma \vee q_\delta \mu$,

Turkish Journal of Computer and Mathematics Education Vol.12 No. 7 (2021), 3291- 3295

Research Article

Hybrid Fuzzy Bi-Ideals In Near-Rings

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Article History: Received: 11 January 2021; Revised: 12 February 2021; Accepted: 27 March 2021; Published online: 16 April 2021

ABSTRACT: In this paper, we introduce the concept of hybrid fuzzy bi-ideals in near rings and give some characterizations of hybrid fuzzy bi-ideals in near rings.

Key words: near-ring, hybrid fuzzy bi-ideal, hybrid structures.

AMS subject classification(2010):16Y30,20M17,06D72.

1. Introduction

In 1965, researcher L.A. Zadeh invented the innovative idea the fuzzy set [4]. M.Himaya Jaleela Begum and S. Jeya lakshmi [1] presented the concept of anti fuzzy bi-ideals in near-ring .The Hybrid structures and applications are introduced Young Baejun. Seok-Zunsong, G.Muhiuddin[5].Young Bae Jun, Madad Khan,Saima Anis [2] presented the concept of hybrid ideals in Semigroups. B.Elavarasam,K.Porselvi YoungBae Jin discussed hybrid generalized bi-ideals in Semi groups[3].In this research paper, we introduce the notion of hybrid fuzzy bi-ideals of Near –rings and illustrated with examples.

2.Preliminaries

Definition:2.1 [3] Let N be a near-ring with two binary operations as '+' and $'\cdot'$ which satisfy the following conditions:

(i) (N,+) be a group
(ii) (N, ·) be a semi-group.
(iii) (x+y) · z= x·z+y·z∀ x,y,z ∈N.
Precisely because it satisfies the right distributive law, it is a right near-ring. We would instead use the term "near-ring" of near ring right". We denote xy instead of x·y. Note that0 (x)=0 and(-x) y=-xy but in general x (0)≠0 for some x ∈N.

Definition:2.2 [3] Let N be a near-ring and let I be the non-empty subset of near- ring N that is called as an ideal of N which satisfies the following conditions:

(iv) (I,+) be a normal subgroup of (N,+),
(v) IN⊆ I,
(vi) y(i+x)-yx ∈ $I \forall i \in I; x, y \in N$.

Definition:2.3 [1] Let N be a near-ring. A fuzzy set μ of N is called as an anti fuzzy bi-ideal of N if for all $x, y, z \in N$.

(i) $\mu(x-y) \leq \max\{\mu(x), \mu(y)\}$.
(ii) $\mu(xyz) \leq \max\{\mu(x), \mu(z)\}$.

Note: 2.4
Jun et al presented the basic representation of hybrid structure and associated outcome as result [4]. Let $\mathcal{P}(U)$ said to be the power set of an initial universal set U and let I be the unit interval.

Definition: 2.5[5] Let $\widetilde{f_\lambda}$ be a hybrid structure in N over U is defined as a mapping

$\widetilde{f_\lambda} := (\tilde{f}, \lambda): N \to \mathcal{P}(U) \times I \qquad X \mapsto (\tilde{f}(x), \lambda(x))$

Where $\tilde{f}: N \to \mathcal{P}(U)$ and $\lambda: N \to I$ are mapping.

The set of all hybrid structures in N over U is denoted by $\mathbb{H}(N)$.

Define a relation '≪' on as follows:

$\tilde{f} \ll \tilde{g} \Leftrightarrow \tilde{f} \tilde{\subseteq} \tilde{g}$ $\lambda \geqslant \mu \forall \tilde{f}, \tilde{g} \in \mathbb{H}(N)$ where $\tilde{f} \tilde{\subseteq} \tilde{g}$ means that $\tilde{f}(x) \subseteq \tilde{g}(x)$ and $\lambda \geqslant \mu$ means that $\lambda(x) \geqslant \mu(x) \forall x \in N$.then $(\mathbb{H}(N), \ll)$ is a partially ordered set

Definition:2.6[5] Let $\widetilde{f_\lambda}$ be a hybrid structure in N over U. Then sets

$$\widetilde{f_\lambda}[\alpha, t] := \{x \in X \,|\, \tilde{f}(x) \supseteq \alpha, \lambda(x) \leq t\}$$

Malaya Journal of Matematik, Vol. 9, No. 1, 587-591, 2021

https://doi.org/10.26637/MJM0901/0100

Intuitionistic $(\in_\gamma, \in_\gamma \vee q_\delta)$-fuzzy prime ideals of near-rings

M. Himaya Jaleela Begum[1] and P. Ayesha Parveen[2*]

Abstract

In this paper, we considered the concept of intuitionistic $(\in_\gamma, \in_\gamma \vee q_\delta)$- fuzzy ideals of a near-ring. Then we brought the concept of intuitionistic $(\in_\gamma, \in_\gamma \vee q_\delta)$ - fuzzy prime ideals of near ring. We state and proved some theorems in intuitionistic $(\in_\gamma, \in_\gamma \vee q_\delta)$ - fuzzy prime ideals of near ring.

Keywords

Near ring, $(\in_\gamma, \in_\gamma \vee q_\delta)$ fuzzy ideals of near-ring, intuitionistic $(\in_\gamma, \in_\gamma \vee q_\delta)$- fuzzy ideals of a near-ring, intuitionistic $(\in_\gamma, \in_\gamma \vee q_\delta)$ - fuzzy prime ideals of a near-ring.

AMS Subject Classification

16Y30, 03E72, 03F55.

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Article History: Received **11** January **2021**; Accepted **19** February **2021**

Contents

1. Introduction

The concept of fuzzy was first introduced by Zadeh[12]. The idea of intuitionistic fuzzy set was introduced by Atanassov[2] as a generalization of notion of fuzzy sets. Abou-Zaid [1] introduced the concepts of fuzzy subnear-rings(ideals) and studied some of their related properties in near rings. The concept was discussed further by many researchers, see[4–8, 13, 15, 16]

A new type of fuzzy subgroup, that is, the $(\in_\gamma, \in_\gamma \vee q_\delta)$ fuzzy sub group, was introduced by Bhakat and Das[3] using the combined notions of the belongingness and quasicoincidence with the fuzzy points and fuzzy sets. It is now natural to investigate similar type of generalizations of the existing fuzzy subsystems with other algebraic structures, see[4, 5, 10, 11, 13, 14, 16]. In[4] Davvaz introduced the concepts of $(\in_\gamma, \in_\gamma \vee q_\delta)$ fuzzy subnear-rings (ideals) of near-rings and investigated some of their related properties. Zhan[13]considered the concept of $(\overline{\in}, \overline{\in} \vee \overline{q})$ fuzzy subnear-rings (ideals) of near-rings and obtained some of its related properties. Finally, some characterizations of $[\mu]_t$ by means of $(\in_\gamma, \in_\gamma \vee q_\delta)$ fuzzy ideals were also given. Zhan and Yin[16] redefined generalized fuzzy subnear-rings (ideals) of near-ring and investigated some of their related properties. Zhan and Yin[17] also introduce $(\in_\gamma, \in_\gamma \vee q_\delta)$- fuzzy subnear-rings (ideals) of a near-rings.

In this paper, the concept of intuitionistic $(\in_\gamma, \in_\gamma \vee q_\delta)$ - fuzzy ideals of a near-rings is considered. We found the notion of intuitionistic $(\in_\gamma, \in_\gamma \vee q_\delta)$ - fuzzy prime ideals of a near-ring and obtained some interesting results .

2. Preliminaries

Definition 2.1. *[3]* A fuzzy set μ of R of the form

$$\mu(y) = \begin{cases} t(\neq 0) \text{ if } y = x, \\ 0 \qquad \text{if } y \neq x, \end{cases}$$

is said to be a fuzzy point with support x and value t and is denoted by x_t .A fuzzy point x_t is said to belong to (resp., be quasi-coincident with) a fuzzy set μ, written as $x_t \in \mu$ (resp., $x_t \; q \; \mu$) if $\mu(x) \geq t$ (resp.,$\mu(x) + t > 1$). If $x_t \in \mu$ or $x_t \; q \; \mu$, then, we write $x_t \in \vee q \; \mu$. If $\mu(x) < t$ (resp., $\mu(x) + t \leq 1$) then, we call $x_t \; \overline{\in} \; \mu$ (resp., $x_t \; \overline{q} \; \mu$). We note that the symbol $(\overline{\in \vee q})$ means that $\in \vee \, q$ does not hold.

Result 2.2. *[17] Let $\gamma, \delta \in [0,1]$ be such that $\gamma < \delta$ .For a fuzzy point x_r and a fuzzy set μ of R, we say that*

Malaya Journal of Matematik, Vol. S, No. 1, 502-505, 2021

http://doi.org/10.26637/MJMS2101/0115

Intuitionistic weak fuzzy Bi-ideals of BCK-algebras

M. Dhivya[1]* and S. Firthous Fatima[2]

Abstract

We consider the Intuitionistic Weak fuzzification of the concept of sub-algebras and Weak Bi-ideals in BCK-algebras and explore some of their properties. We suggest the perception of equivalence relations on the clan of all Intuitionistic Weak fuzzy Bi-ideals of a BCK- algebra and explore some related properties.

Keywords

Intuitionistic fuzzy subalgebra, Intuitionistic fuzzy ideal,Intuitionistic fuzzy Bi-ideal, Intuitionistic Weak fuzzy Bi-ideal, Strong fuzzy Bi-ideal, homomorphism.

AMS Subject Classification

06F35, 03E72, 03G25.

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Article History: Received **01** November **2020**; Accepted **10** January **2021**

Contents

1. Introduction

Behind the initiation of the concept of fuzzy set by Zadeh [12] several researches were directed on the generalizations of the thought of fuzzy sets. The intention of "Intuitionistic fuzzy set"was first introduced by Atanassov [1],as a generalization of the knowledge of fuzzy set. The author(together with Hong, Kim, Roh and Song)considered the fuzzification of ideals and sub-algebras in BCK-algebras([6–9]. In [3] applied the concept of Strong Fuzzy Bi-ideals of BCK-Algebras. In this paper, using the Atanassov's and Young Bae Jun intention, we enact the intuitionistic fuzzification of the concept of sub-algebras and Bi-ideals in BCK-algebras,and examine some of their properties. We suggest the perception of equivalence relations on the clan of all intuitionistic weak fuzzy Bi-ideals of a BCK-algebra and explore some related properties.

2. Preliminaries

Definition 2.1. ([4]). By a *BCK-algebra* we mean a non-empty set X with a binary operation $*$ and a constant 0 satisfying the following condition:

(a) $((x*y)*(x*z)*(z*y)) = 0$

(b) $(x*(x*y))*y) = 0$

(c) $x*x = 0$

(d) $0*x = 0$

(e) $x*y = 0$ and $y*x = 0$ imply that $x = y$ for all $x,y,z \in X$.

Definition 2.2. A *partial ordering* "$\leq$"on X can be defined by $x \leq y$ if and only if $x*y = 0$.

Definition 2.3. A non-empty subset S of a BCK-algebra X is called a *sub-algebra* of X if $x*y \in S$ whenever $x,y \in S$.

Definition 2.4. A non-empty subset I of a BCK-algebra X is called an *ideal* of X if

(a) $0 \in I$

(b) $x*y \in I$ and $y \in I$ imply that $x \in I$ for all $x,y \in X$.

Definition 2.5. ([2]). A *fuzzy set* α in a non-empty set X we mean a function $\alpha : X \to [0,1]$.

Definition 2.6. The complement of α, denoted by $\overline{\alpha}$ is the fuzzy set in X given by $\overline{\alpha}(x) = 1 - \alpha(x)$ for all $x \in X$.

Definition 2.7. ([11]). A fuzzy set α in a BCK-algebra X is called a *fuzzy sub-algebra* of X if $\alpha(x*y) \geq \min\{\alpha(x), \alpha(y)\}$ for all $x,y \in X$

Turkish Online Journal of Qualitative Inquiry (TOJQI)
Volume 12, Issue6, July , 7022 - 7027

Research Article

Multi - Event Sport Scheduling using Independent Domination

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Abstract

In this paper work, we wish to Schedule multi events in a sport with break and without break with the help of graph using independent domination.

Keywords: sports scheduling, independent Domination.

1. Introduction

Scheduling Sports events is a process which is arranging of different kinds of Sports in particular timing order for convenient of players and the organizers. Schedule sports events for their convenient of players to not to clash with other events and also for the convenient of event organizers to make the event conduct in short time that is without break. In another case, one player cannot play another game immediately, the player need rest. This same will happen to another player also. Likewise verity of sports may be play by many players. For their convenient, sports events should be arranged in a particular order in common are conduct at different time with break. In this paper, we schedule the multi sports for players convenient that is player can play more than one sports with break and without break with the help of graph theory using independent domination.

2. Definition

A Set S of vertices in a graph G is a **dominating set** if every vertex in V – S is adjacent to some vertices in S. A dominating set S is an **independent dominating set** if no two vertices in S are adjacent. **Iterated domination** is a greedy algorithm which finds a minimal dominating set, say S_1. Remove S_1 from G, and once again find a minimal dominating set S_2 in the graph $G – S_1$. Remove S_2 and once again find a minimal dominating set in the graph $G - S_1 - S_2$. Repeat this process until no vertices remain. One can also iteratively remove independents sets of vertices.

3. Scheduling sports without break using iterated independent domination

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Multivariate Markov Chain Model for Fuzzy Time Series

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***Abstract*— The dollar is important indicator of the Indian Economy. Crude oil and gold dominated because of increasing the dollar price. Markov chain is one of the essential tools for finding the categorical data. In many situations categorical data sequences in the same time period so data sequences can be correlated. Monthly changes of crude oil price and gold prices are two categorical data sequences is analyzed multivariate Markov chain model. Simple linear regression analysis is using these categorical data sequence. The entire transition probability matrix and Transition digraph are calculated using R (3.2.1) language.**

***Key words* — Fuzzy Time Series, Markov chain, Multivariate, Transition probability matrix, Transition digraph.**

I. INTRODUCTION

Dollar is a one of the important place in the world market. Rupees value decreasing is the main factor of increases dollar index. The record setting of US dollars directly affected the Indian market because most of the business does their business in US dollars and also crude oil and gold rate is measured in terms of US dollars. Every $10 per barrel rise in the price will worsen India's fiscal balance by 0.1%. Time series data happen regularly in numerous real world applications. One of the major significant strides in breaking down period arrangement information is the determination of suitable scientific model for the data, because it helps in expectation, speculation testing and rule disclosure. The Multivariate Markov chain Model indicates the behaviour of multiple time series fuzzy logic data generated by similar source.

L.Zadeh (1965) presented fuzzy sets with a membership function that ranges from zero to one.Further in 1993 Song and chissom introduced Fuzzy Time series (FTS) model for finding the enrollment data of University of Alabama. In 1994 Song and chissom used time –varient model for the same problem. A basic definition of dependence value of M_n is a successive transition was introduced by Russian mathematician Andrey Markov (1906) and is known as Markov dependence. In 1985 Adrin Raftery et.al introduced higher order Markov chain model and also in 1994 he proposed computational algorithm for higher order Markov chain model.

Bruno Damásio andSandroMendonça (2018): explained about the dynamics between the two capital goods using a vector autoregression approach (VAR) and aMultivariate Markov Chain approach (MMC) and also analysed the intriguing relationship between sail and steamat the dawn of globalising industrial capitalism. They also provided the evidence that improvementsin the incumbent and insurgent technologiesappear interrelated. Rafaela BoeiraCechin and et al. (2019) High-order multivariate Markov chains were used to analyze the state transition probabilities between the Ibovespa index and the DowJones index.

Neutrosophic Fuzzy Bi-ideals of Near Ring

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Abstract: In this paper, we consider Neutrosophic fuzzy ideals in near rings and some fundamental properties to neutrosophic fuzzy ideals in near rings are discussed.The notion of neutrosophic fuzzy bi-ideals in near rings are introduced,appropriate example is provided and their some algebraic properties like union,intersection are investigated.The image and inverse image of neutrosophic fuzzy bi-ideals in near rings are studied.Moreover,we discussed the direct product of neutrosophic fuzzy bi-ideals in near rings.

AMS Subject Classification: *03E72, 13A15, 16Y30*

Keywords: Neutrosophic fuzzy set, Neutrosophic fuzzy sub near-ring, Neutrosophic fuzzy ideals of near-rings, Neutrosophic fuzzy bi-ideals of near-ring.

Article History

Received: 16/02/2021; Accepted: 09/03/2021

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1. Introduction

The concept of fuzzy set was introduced by Zadeh in 1965. It discussed the grade of truth values belonging to a unit interval. The notion of fuzzy sub-near rings and fuzzy ideals of near-rings was introduced by Abou-Zaid. This concept is further discussed by Kim[3] and Dutta[4].V.Chinnadurai and S. Kadalarasi[5] discussed the direct product of n(n=1,2,…..,k) fuzzy sub-near rings, fuzzy ideal and fuzzy R-subgroups. Fuzzy set is a valuable technique to cope with vague and difficult information in a real-life decision. The concept ofNeutrosophy was introduced by Florentin Samrandache[6] as a new branch of philosophy. Neutrosophy is a base of Neutrosophic logic which is an extension of fuzzy logic in which indeterminancy is included. In Neutrosophic logic, each proportion is estimated to have the percentage of truth in a subset T,

NSS

Neutrosophic Sets and Systems, Vol. 42, 2021

University of New Mexico

Neutrosophic $\mathcal{N}$-Topological Ordered Space

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Abstract. This research article presents a new concept, "Neutrosophic $\mathcal{N}$-topological ordered space". Also we define some of the separation axioms, weakly neutrosophic $\mathcal{N}\varsigma$-T_2-ordered space and Neutrosophic $\mathcal{N}\varsigma$-regularly ordered space in Neutrosophic $\mathcal{N}$-topological ordered space. Besides giving some of the innovative properties of these spaces.

Keywords: Neutrosophic $\mathcal{N}\varsigma$-T_1-ordered space, Neutrosophic $\mathcal{N}\varsigma$-T_2-ordered space, Weakly neutrosophic $\mathcal{N}\varsigma$-T_2-ordered space, Almost Neutrosophic $\mathcal{N}\varsigma$-T_2-ordered space and Neutrosophic $\mathcal{N}\varsigma$-regularly ordered space.

1. Introduction

L.A. Zadeh introduced the concept of fuzzy sets [14]. The theory of fuzzy topological spaces was developed by Chang [3] . The study of intutionistic fuzzy set was established by Atanassov [1] in 1983. In [4], the another notion called intutionistic fuzzy topological space was found by Coker. F. Smarandache originated the concepts of neutrosophy and neutrosophic set ([12], [13]). The concept of neutrosophic crisp set and neutrosophic crisp topological space were introduced by A.A. Salama and S.A. Alblowi [11]. Leopoldo Nachbin [9] initiated the study of topological ordered spaces in 1965. Lellis Thivagar et al. [6] have proposed the concept of N-topological space. Recently we found the new concept called $\mathcal{N}$-topological ordered spaces [5]. In this paper, we investigate the concept called Neutrosophic $\mathcal{N}$-topological Ordered Space. And also, we establish some of the Separation Axioms and its characterizations.

Turkish Online Journal of Qualitative Inquiry (TOJQI)
Volume 12, Issue6, July , 7094- 7101

Research Article

Scheduling a Semi-Round Robin Tournament using Independent Edge Domination

H.M. Sulthan Ahthar[1], S. Syed Ali Fathima[2], K. Alli[3]

Abstract

This paper discuss about scheduling a semi round robin tournament without equal number of matches and with equal number of matches. In this paper, we introduce a method for scheduling a semi round- robin tournament with the help of independent edge domination.

Keywords: Round-Robin, Domination, independent edge domination.

1. Introduction

Domination in graphs is the one of the most engaging area which is used by many researchers for practical problem. Sports scheduling is one of the important practical problem because many sports schedule involves organizers many, peoples time and lot more. So that, many researchers involve in scheduling sports. Here we discuss about the semi round robin tournament. A **round-robin** is a sports competition in which each player or team plays against every other player or team. The **semi-round robin** is one of the round robin tournaments where uneven divisions are scheduled. This paper discuss about scheduling a semi round robin tournament without equal number of matches and with equal number of matches. In this paper, we introduce a method for scheduling a semi round- robin tournament with the help of independent edge domination.

2. Definition

A **graph** is an ordered pair G = (V, E) where V is the vertex set and E is the edge set. A graph with one component is called connected graph and a graph with more than one component is a **disconnected graph**. A graph may contain loops and multiple edges are called **general graph**. Graphs with no loops or multiple edges are called **simple graphs.** A **complete graph** is a graph in which each pair of graph vertices is connected by an edge. A complete graph with n vertices denoted by 'K_n' is a graph with n vertices in which each vertex is connected to each of the others. The **degree** of a vertex V in a graph G denoted by d(v) is the number of edges incident with v. A graph in which each vertex has the same degree is a **regular graph.** If each vertex has degree r, the graph is **regular of degree r** or **r-regular.** Of special importance are the **cubic graphs,** which are regular of degree 3. A set D of vertices in a graph G = (V, E) is called a **dominating set** of G if every vertex in V – D is adjacent to some vertex in D. A set F of edges in

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Malaya Journal of Matematik, Vol. S, No. 1, 413-415, 2021

https://doi.org/10.26637/MJMS2101/0092

Semi-complementary connected anti-fuzzy equitable dominating set in anti-fuzzy graphs

S. Firthous Fatima[1] and K. Janofer[2*]

Abstract

In this paper, the notion of semi-complementary connected anti-fuzzy equitable dominating set in anti-fuzzy graphs is introduced. The semi-complementary anti-fuzzy equitable domination number is obtained. The relation between anti-fuzzy equitable domination number and semi-complementary connected anti-fuzzy equitable domination number are found. Bounds for semi-complementary anti-fuzzy equitable dominating set are also obtained

Keywords

Anti-fuzzy equitable dominating set, semi-complementary anti-fuzzy equitable dominating set, semi-complementary connected anti-fuzzy equitable dominating set.

AMS Subject Classification

05C72, 03E72.

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Article History: Received **01** November **2020**; Accepted **10** January **2021**

Contents

1. Introduction

M.Akram [1] introduced the concept of anti-fuzzy structures in fuzzy graphs in the year 2012. A.Somasundaram and S. Somasundaram [12] presented several types domination parameters such as independent domination, total domination, connected domination and domination in Cartesian product and composition of fuzzy graphs. R. Muthuraj and A. Sasireka [10] introduced domination in anti-fuzzy graphs. The concept of equitable domination in fuzzy graphs was introduced by Dharmalingam et al. [2]. Some works in complementary nil domination in fuzzy graphs using effective edges can be found in [5, 6]. Recently, S.Y.Mohamed and A.M. Ali [7–9] introduced interval-valued Pythagorean fuzzy graphs and energy of spherical fuzzy graphs. Firthous Fatima and Janofer [3, 4] introduced anti-fuzzy equitable dominating set and connected anti-fuzzy equitable dominating sets in anti-fuzzy graphs. In this paper, the notion of semi-complementary anti-fuzzy equitable dominating sets in anti-fuzzy graphs is introduced. The semi-complementary connected anti-fuzzy equitable domination number is obtained. Some theorems related to these parameters stated and proved.

2. Preliminaries

Definition 2.1. *A fuzzy graph $G = (\sigma, \mu)$ is said to be an anti-fuzzy graph with a pair of functions $\sigma : V \to [0,1]$ and $\mu : V \times V \to [0,1]$, where for all $u, v \in V$, we have $\mu(u,v) \geq \sigma(u) \vee \sigma(v)$ and it is denoted by $G_{AF}(\sigma, \mu)$.*

Definition 2.2. *The order p and size q of an anti-fuzzy graph $G = (V, \sigma, \mu)$ are defined to be $p = \sum_{u \in V} \sigma(u)$ and $q = \sum_{uv \in E} \mu(uv)$. It is denoted by $O(G)$ and $S(G)$.*

Definition 2.3. *Let G be an anti-fuzzy graph and let $u, v \in V$. If $\mu(u,v) = \sigma(u) \vee \sigma(v)$ then u dominates v (or v dominates u) in G. A set $D \subseteq V$ is said to be a dominating set of an*

International Journal of Scientific Research & Engineering Trends
Volume 7, Issue 2, March-April-2021, ISSN (Online): 2395-566X

Supra Semi Totally Continuous Function in Supra Topological Space

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Abstract- **The properties of new class of function namely supra semi totally continuous function and supra totally semi continuous function in Supra Topological Spacee are analyzed in this paper. The relation of these functions with already existing will known function are studied.**

Keywords- **Supra open set, Supra semi open set, Supra closed set, Supra clopen set.**

I.INTRODUCTION

The concept of supra topology was introduced by Moshour et al in 1983. It is fundamental with respect to the investigation of general topological spaces.

He also introduced certain weak form of supra open set such as supra open set, supra semi-open set and supra pre open set. Further he introduced continuity which is the core concept of topology in supra topological space.

II. PRELIMINARIES

Definition 1. A sub family μ of X is said to be a supra topology on X, if

- X, φ ∈ μ
- If Ai ∈ μ, ∀i∈J, then ∪ Ai ∈ μ. The pair (X,μ) is called the supra topological space.

The elements of μ are called supra open sets in (X,μ) and the complement of a supra open set is called supra closed set.

Definition 2. The supra closure of a set A is denoted by clμ (A) and is defined as clμ (A) = {B| B is a supra closed and A⊆B }.

Lemma 3. If X is a supra locally indiscrete space, then each supra semi open subset of X is supra closed and hence each supra semi closed subset of X is a supra open.

Theorem 4. Let (X,μ) be a supra topological space.

- Let A⊂X. Then A∈S∗SO(X,μ) if and only if S∗clA = S∗cl(S∗intA).
- If {Aγ|γ ∈ Γ} is a collection of supra semi open sets in a supra topological space (X,μ). Then ∪{Aγ:γ ∈ Γ} is a supra semi open.

Theorem 5. If Y is a supra semi open sub space of a space X, then a subset A of Y, is a supra semi open set in X, if and only if A is supra open set in Y.

Theorem 6. Let (X,μ) be a supra topological space. If A∈μ and B∈S∗SO(X), then A∩B∈S∗SO(X).

Definition 7. A function f : (U,μ) → (V,μ') is said to be supra totally continuous if f −1(V) is supra clopen is U for each supra open subset in V.

III. SUPRA SEMI TOTALLY CONTINUOUS FUNCTION AND THEIR BASIS PROPERTIES

Definition 1. A function f : (U,μ) → (V,μ') is said to be supra semi totally continuous if inverse image of every supra semi open subset of V is supra clopen in U.

Example 2. Let X = Y = {a,b,c,d}

- Then μ = {X,φ,{a},{b,c,d}}
- S∗CO(X,μ) = {X,φ,{a},{b,c,d}}
- S∗SO(Y,μ') = {Y,φ,{a}}
- Define f : (X,μ) → (Y,μ') is given by
- f(a) = a, f(b) = b, f(c) = c, f(d) = d
- f −1(a) = a, f −1(b) = b, f −1(c) = c, f −1(d) = d

Hence, inverse image of supra semi open set in Y is supra clopen in X. Then f is supra semi totally continuous.

Theorem 3. A function f : (X,μ) → (Y,μ') is supra semi totally continuous if and only if inverse image of every supra semi closed subset of Y is supra clopen in X.

Proof

Suppose f: (X,μ) → (Y,μ') is supra semi totally continuous.

Let F be supra semi closed in Y. Then FC is supra semi open in Y.

WIENER'S INDEX OF NON-ZERO COMPONENT UNION GRAPH

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Abstract. ***In this paper, we establish the results of the distance matrix, Wiener's index of the non-zero component union graph of the finite dimensional vector space. Moreover we investigate the result of the vertex connectivity of the non-zero component union graph also.***

Keywords: **Non-zero component Union Graph, Distance matrix, Wiener's index, Vertex connectivity.**

I. INTRODUCTION

The idea of zero-divisor graph of a commutative ring with unity was introduced by Beck [1]. The formal study of the relationship between algebra and graph at advancing level of one another to issue the coloring of the vertices (edges). A lot of research has been done in connecting graph structures to various algebraic fields. Ansguman Das [5] has also introduced the idea of the non-zero component graph of the finite dimensional vector space and also deal the graph of the non-zero component union graph of the finite dimensional vector space over a finite field and proved the results of some basic properties and also studied related results like [4, 6]. In [12], the spectrum of the non-zero component union of the finite dimensional vector space like adjacency, degree, Laplacian, Signess Laplacian matrix of $\Gamma(V_B)$are found. In 1841 [3], the originates the distance matrix has innovated in very first paper of Cayley. During 20th centaury the study distance matrix began formally. The problem of reliability be the first problem done by graph theory researchers. The problem was first posed by Hakimi and Yau in [8] and studied by many mathematicians. In [16], Wiener has introduced the Wiener index of a graph in 1947. It was the first repotted topological index defined as the sum of all distance between vertices of the graph. The vertex connectivity of the graph is basic topic in graph theory and it discussed by Whitney in 1932 and Harray in 1994 [15]. In this paper we establish the result of the distance matrix and Wiener's index of the non-zero component union graph of the finite dimensional vector space and also the result of vertex connectivity of the same.

II. PRELIMINRIES

In a graph, V be vertices an finite non-empty set grounded with the edge set E unordered pair of distinct vertices. In which every pair of distinct vertices is joined by an unique edge called complete graph. The length of the shortest cycle is defined as girth and is denoted by *gr(G)* and the graph does not contain any cycle, the girth is said to be infinity. The degree of the vertex is the number of the edges that are incident with vertex, and in a multigraph, loops are counted twice. The degree of a vertex v is denoted *deg(v)* or *deg v*. The maximum degree of a graph G, denoted by $\Delta(\mathrm{G})$, and the minimum degree of a graph, denoted by $\delta(\mathrm{G})$. Since every vertex has the same degree in regular graph can speak the degree of the graph. A complete graph K_n is the special kind of regular graph where all the vertices have the maximum degree as $n-1$. A graph's diameter is the largest number of vertices which must be traversed in order to travel from one vertex to another when paths which backtrack, detour, or loop are excluded from consideration. In otherwords, the length *d(u, v)* of the "longest shortest path" between any two graph vertices *(u,v)*, where *d(u,v)* is a graph distance. In directed graph the distance *d(u, v)* between two vertices u and v is defined as the length of a shortest directed path, consisting of arcs, provided at least one such path exists. In undirected graph, *d(u, v)* does not necessarily coincide with *d(v, u)*, and it might be the case that one is defined while the other is not. Distance between two vertices in a graph is the number of edges in a shortest path connecting them also known as the geodesic distance. Moreover

International Journal of Scientific Research & Engineering Trends
Volume 7, Issue 5, Sept- Oct-2021, ISSN (Online): 2395-566X

A Study On Anti Ramsey Coloring Problems

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Abstract- Let ar(G, H) be the maximum number of colors such that there exists an edgecoloring of G with ar(G, H) colors such that each subgraph isomorphic to H has atleast two edges in the same color. We call ar(G, H) the Anti-Ramsey number for a pair of graphs ar(G, H). In this paper, we determine the Anti-Ramsey number for special graphs.

Keywords- Lollipop, Barbell, Triangular Snake Graphs.
Mathematical Classification : 05C15

I. INTRODUCTION

A Graph coloring is an assignment of labels, called colors, to the vertices of a graph such that no two adjacent vertices share the same color. Other types of colorings on graphs also exists, most notably edge colorings that may be subject to various constraints. The study of Graph colorings has historically been linked closely to that of planar graphs and the four colored theorem, which is also the most famous graph coloring problem. Those problems provided the original motivation for the development of Algebraic Graph Theory and the study of graph invariants such as those discussed. Applications for solved problems have been found in areas such as computer science, information theory, and complexity theory. Many day-to-day problems, like minimizing conflicts in scheduling are also equivalent to Graph coloring.

An edge-colored graph is called rainbow if all the colors on its edges are distinct. Let ar (G, H) be the largest number of colors such that there exists an edge-coloring of G with ar(G, H) colors such that each subgraph isomorphic to H has atleast two edge in the same color. For a pair of graphs(G, H), ar(G, H) is called the Anti-Ramsey number. Erdos and Simonovits introduced this concept in 1973 and it has been the subject of numerous studies. This paper deals the AntiRamsey number for some special graphs and also shows the exact value for particular graphs. For graph terminology, see[4].

A Lollipop Graph (Lm,n) is a graph consisting of a complete graph (clique) on m vertices and a path graph on n vertices, connected with a bridge. A Barbell Graph (Bn) is a special type of undirected graph consisting of two non-overlapping n − vertex cliques together with a single edge that has an endpoint in each clique. A Triangular Snake Graph (T Sn) is obtained from a pathu1, u2, . . . , un by joining ui and ui+1 to a new vertex vi for $1 \leq i \leq n$, that is every edge of a path is replaced by a triangle.

II. MAIN RESULT

Theorem 2.1. The Anti Ramsey number of a Lollipop Graph (Lm,n), ar(Lm,n, H) = m 2 + n − 1 where H = Sm; $m \geq 3$ and n = 1, 2, 3.... m + n − 1 where H = C3 or Tm,r; n > m; n = 3, 4, 5, . . . ; m, r = 1, 2, 3, ... Proof. Csae 1: Let H = Sm the subgraph in Lm,n. In Lm,n, color exactly two edges with same color(blue) and the residue m 2 + n − 2 edges of Lm,n can be colored using different color. Entirely, we use m 2 + n − 1 colors. Suppose ar(Lm,n) = m 2 + n. Thus our assumption shows that there forms a rainbow coloring in Lm,n. This is a contradiction. Hence ar(Lm,n, Sm) = m 2 + n − 1.

Case 2: Let H = C3 or T3,r be the subgraph in Lm,n. In Lm,n, we color m 2 + n edges of Lm,n with same color(blue) and the residue m + n − 2 edges of Lm,n using different colors.Entirely, we use m + n − 1 colors. Suppose ar(Lm,n, H) = n + m. By hypothesis, we could able to color m 2 − m + 1 edges of Lm,n with same color(blue) and remaining m + n − 1 edges of Lm,n using different colors. Thus we obtain the subgraph that involve one edge from blue colored edge and rest of the edges from m + n − 1 edges. This shows that there forms a rainbow in a subgraphs. This is a contradiction. Hence ar(Lm,n, H) = m + n − 1.

Theorem 2.2. The Anti Ramsey number of a Barbell Graph (Bn) ar(Bn, H) = 2(n 2) − 1 where H = Lm,r or Tm,r and m = n; r = 1, 2, 3, . . . ; n = 3, 4, 5, . . . Proof. Let H = Lm,r or Tm,r be the subgraph in Bn. In Bn, color exactly three edges with same color(blue) and the residue 2n 2 − 2 edges of Bn can be colored using different colors. Entirely, we use 2n 2 − 1 colors. Suppose ar(Bn, H) = 2n 2 . By hypothesis, we could able to color exactly two with same color (blue) and residue 2n 2 − 1 edges with different color. Thus we obtain a subgraph that include one edge from blue colored edge and rest of edges from 2n 2 − 1 edges. This shows that there forms a rainbow in a subgraphs. This is a contradiction. Hence ar(Bn, Lm,r or Tm,r) = 2 n 2 − 1.

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VOUCHSAFE ME WISDOM

First Edition November, 2017

ISBN: 978 – 81 – 935198 – 1 – 3

Price: Rs. 200

Printed in India
No. of Pages: 95

Printed at
BU digitals
Tirunelveli.

Published by

Sadakathullah Appa Educational Society
Rahmath Nagar, Tirunelveli - 627 011,
Tamil Nadu, India,
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Published by

Sadakathullah Appa Educational Society
Rahmath Nagar, Tirunelveli - 627 011,
Tamil Nadu, India. www.sadakath.ac.in

ISBN: 978 – 81 – 935198 – 1 – 3

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ON
INNOVATIONS IN MATHEMATICS

EDITORIAL COMMITTEE

ISBN : ISBN No.:978-81-935198-5-1

Price : Rs. 250

Printed in India
No. of Pages : 116

Printed at : Kasi Graphics
Tirunelveli
9443614556

Published by : **Sadakathullah Appa Educational Society**
Rahmath Nagar, Tirunelveli - 627 011,

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Published by
Sadakathullah Appa Educational Society
Sadakathullah Appa College (Autonomous)
Rahmath Nagar, Tirunelveli - 627011

978-81-935198-5-1

ISBN No.:978-81-935198-5-1

Layout and Print :
Kasi Graphics- 9443614556

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FUNDED BY

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(Reaccredited by NAAC at an 'A' grade with a CGPA of 3.40 out of 4.00 and ISO 9001:2015 Certified Institution)

RAHMATH NAGAR, TIRUNELVELI-627011.

First Edition APRIL, 2019

ISBN: 978-81-938054-7-3

Price: Rs. 300

Printed in India
No. of Pages : 90

Published by

Sadakathullah Appa Educational Society
Rahmath Nagar, Tirunelveli - 627 011,
Tamil Nadu, India,
www.sadakath.ac.in

CONTENT

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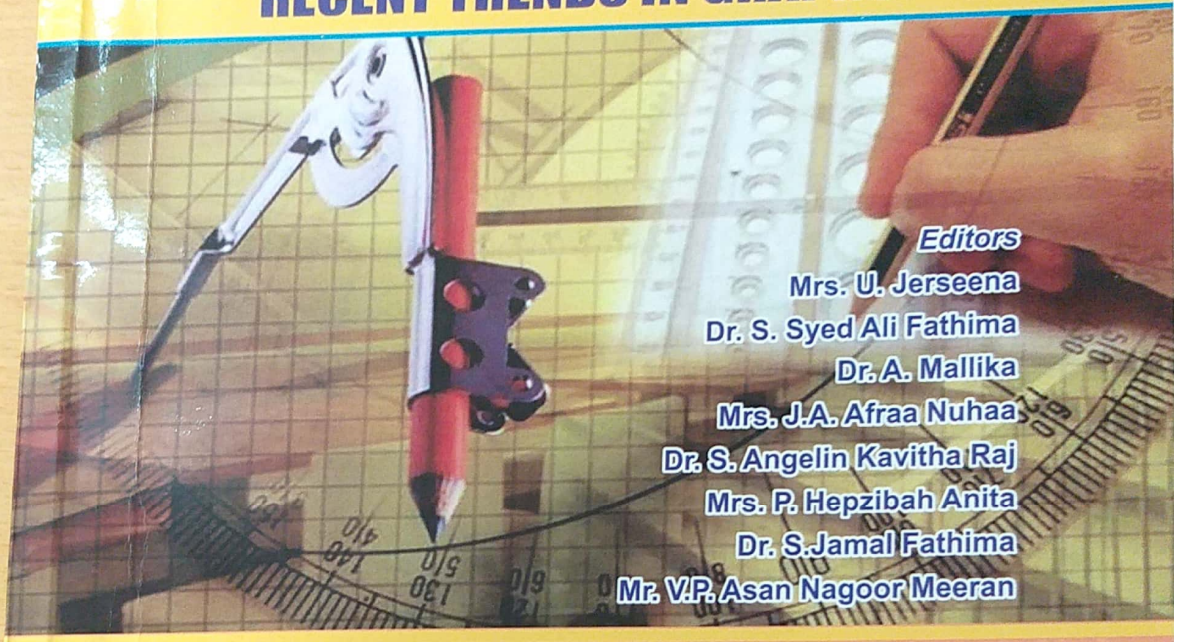

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05th February 2020

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Price : Rs. 500

Printed in India
No. of Pages : 233

Printed at : Kasi Graphics
Tirunelveli
9443614556

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posted Sep 16, 2013, 4:14 PM by ADMA Administrator **[updated Sep 16, 2013, 4:14 PM]**

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Email: rilwan2020@gmail.com
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		<40	40-59	60-74	75-89	>=90	Toppers
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Paper Title: Edge vertex prime labeling of Cayley (di)graphs
Journal Name: Malaya Journal of Matematik
Volume: 8
Issue No.: 2
Month of publication:
Year: 2020
Page no.: 531-535
ISSN: (Print) : 2319 - 3786

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From Discrete Mathematics, Algorithms and Applications (DMAA) <em@editorialmanager.com>

To: Mallika A <mallikamsu2010@yahoo.in>

Date Sat, 22 Sep 2018 at 9:35 pm

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The complement of the Jacobson graph\\of a commutative ring
Discrete Mathematics, Algorithms and Applications (DMAA)

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		<40	40-59	60-74	75-89	>=90	Toppers
26	18	10	2	6	0	0	0

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NPTEL Coordinator
IIT Madras

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CERTIFICATE

This is to certify that *Syed Mohamed Buhari J.*, doing B.Sc. at Sadakathullah Appa College, Tamil Nadu, has participated in Young Talent Nurture (YTN) program organized by the Department of Mathematics, IIST, Thiruvananthapuram, during 22nd May–3rd June 2017.

V. K. Dadhwal
Director

K. S. S. Moosath
HoD, Mathematics

K. Sakthivel & Kaushik Mukherjee
Convenors, YTN 2017

Indian Institute of Space Science and Technology

Thiruvananthapuram

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Young Talent Nurture – 2018

CERTIFICATE

This is to certify that *J. Syed Mohamed Buhari*, pursuing B.Sc. at Sadakathullah Appa College (Autonomous), Tirunelveli, Tamil Nadu, has participated in Young Talent Nurture (YTN) program organized by the Department of Mathematics, IIST, Thiruvananthapuram, during 14th – 26th May 2018.

Prosenjit Das	K. S. S. Moosath	K. Sakthivel
Co-ordinator, YTN 2018	HoD, Mathematics	Co-ordinator, YTN 2018

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Department of Mathematics
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Karumathur, Madurai

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Rev.Dr.S.Basil Xavier, S.J.	M.Gilbert Rani	S. Kumaresan
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Department of Mathematics
Arul Anandar College(Autonomous)
Karumathur, Madurai

Participation Certificate

This is to certify that Mr. ***S. Shunmuga Velayutham*** of *Sadakathullah Appa college(Autonomous), Tirunelveli-627011* participated in Mini-Mathematics Training and Talent Search Programme.

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Online Assignments	24.83/25	Proctored Exam	56.25/75

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PALAYAMKOTTAI
TIRUNELVELI
TAMIL NADU - 627011
PH. NO :8754104957

Score	Type of Certificate
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>=60	Elite
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Online Assignments	25.00/25	Proctored Exam	58.5/75

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Online Assignments	25.00/25	Proctored Exam	51/75

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Feb-Apr 2020
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>=60	Elite
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TAMILNADU - 627005
PH. NO :9952634786

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75-89	Elite+Silver
>=60	Elite
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with a consolidated score of **75** %

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PALAYAMKOTTAI, TIRUNELVELI
TAMILNADU - 627002
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for successfully completing the course

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with a consolidated score of **83** %

Online Assignments	22.83/25	Proctored Exam	60.45/75

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TIRUNELVELI
TAMILNADU - 627004
PH. NO :6382673098

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75-89	Elite+Silver
>=60	Elite
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<40	No Certificate

No. of credits recommended by NPTEL:2
An additional 1 credit may be awarded if the University deems it fit, based on the actual student effort involved.

Elite

NPTEL Online Certification

(Funded by the Ministry of HRD, Govt. of India)

TOP TOPPER 5%

This certificate is awarded to

JAFRIN FAHMITHA M H

for successfully completing the course

Developing Soft Skills and Personality

with a consolidated score of **88** %

Online Assignments	23.71/25	Proctored Exam	64.52/75

Total number of candidates certified in this course: **8393**

Prof. Rajesh M.Hegde
Chairman, Centre for Continuing Education
IIT Kanpur

Sep-Nov 2020
(8 week course)

Prof. Satyaki Roy
NPTEL Coordinator
IIT Kanpur

Indian Institute of Technology Kanpur

swayam

This certificate is computer generated and can be verified by scanning the QR code given below. This will display the certificate from the NPTEL repository, https://nptel.ac.in/noc/

Roll No: NPTEL21HS02S14470304

To
GAYATHRI DEVI R
26/62
PERUMAL NORTH CAR STREET
PALAYAMKOTTAI
TAMILNADU - 627002
PH. NO :6374744940

Score	Type of Certificate
>=90	Elite+Gold
75-89	Elite+Silver
>=60	Elite
40-59	Successfully Completed
<40	No Certificate

No. of credits recommended by NPTEL:2
An additional 1 credit may be awarded if the University deems it fit, based on the actual student effort involved.

Elite

NPTEL Online Certification

(Funded by the Ministry of HRD, Govt. of India)

This certificate is awarded to

GAYATHRI DEVI R

for successfully completing the course

Enhancing Soft Skills and Personality

with a consolidated score of **76** %

Online Assignments	23.25/25	Proctored Exam	52.95/75

Total number of candidates certified in this course: **7339**

Prof. Rajesh M.Hegde
Chairman, Centre for Continuing Education
IIT Kanpur

Feb-Apr 2021
(8 week course)

Prof. Satyaki Roy
NPTEL Coordinator
IIT Kanpur

Indian Institute of Technology Kanpur

FREE ONLINE EDUCATION swayam शिक्षित भारत, उन्नत भारत

This certificate is computer generated and can be verified by scanning the QR code given below. This will display the certificate from the NPTEL repository, https://nptel.ac.in/noc/

Roll No: NPTEL21HS02S14470283

To
HALIMARASPIYA S
56/76, MUSLIM SOUTH STREET
V. R. PURAM
KALAKAD
TAMILNADU - 627501
PH. NO :9384418859

Score	Type of Certificate
>=90	Elite+Gold
75-89	Elite+Silver
>=60	Elite
40-59	Successfully Completed
<40	No Certificate

No. of credits recommended by NPTEL:2
An additional 1 credit may be awarded if the University deems it fit, based on the actual student effort involved.

Elite

NPTEL Online Certification

(Funded by the Ministry of HRD, Govt. of India)

This certificate is awarded to

HALIMARASPIYA S

for successfully completing the course

Enhancing Soft Skills and Personality

with a consolidated score of **80** %

Online Assignments	23.83/25	Proctored Exam	55.93/75

Total number of candidates certified in this course: **7339**

Prof. Rajesh M.Hegde
Chairman, Centre for Continuing Education
IIT Kanpur

Feb-Apr 2021
(8 week course)

Prof. Satyaki Roy
NPTEL Coordinator
IIT Kanpur

Indian Institute of Technology Kanpur

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This certificate is computer generated and can be verified by scanning the QR code given below. This will display the certificate from the NPTEL repository, https://nptel.ac.in/noc/

Roll No: NPTEL21HS02S24470376

To
S IFTHIHAR SHIREEN
4A 4TH STREET ERUVADI
TAMILNADU - 627103
PH. NO :9487347753

Score	Type of Certificate
>=90	Elite+Gold
75-89	Elite+Silver
>=60	Elite
40-59	Successfully Completed
<40	No Certificate

No. of credits recommended by NPTEL:2
An additional 1 credit may be awarded if the University deems it fit, based on the actual student effort involved.

Elite

NPTEL Online Certification

(Funded by the Ministry of HRD, Govt. of India)

This certificate is awarded to

S IFTHIHAR SHIREEN

for successfully completing the course

Enhancing Soft Skills and Personality

with a consolidated score of **75** %

Online Assignments	23.83/25	Proctored Exam	51.06/75

Total number of candidates certified in this course: **7339**

Prof. Rajesh M.Hegde
Chairman, Centre for Continuing Education
IIT Kanpur

Feb-Apr 2021
(8 week course)

Prof. Satyaki Roy
NPTEL Coordinator
IIT Kanpur

Indian Institute of Technology Kanpur

Roll No:NPTEL21HS02S24470376

To validate and check scores: https://nptel.ac.in/noc

This certificate is computer generated and can be verified by scanning the QR code given below. This will display the certificate from the NPTEL repository, https://nptel.ac.in/noc/

Roll No: NPTEL20HS43S82420350

To
JESMI JANE A
1200B ARUNACHALA NAGAR
K T C NAGAR
PALAYAMKOTTAI
TAMILNADU - 627011
PH. NO :9361571141

Score	Type of Certificate
>=90	Elite+Gold
75-89	Elite+Silver
>=60	Elite
40-59	Successfully Completed
<40	No Certificate

No. of credits recommended by NPTEL:2
An additional 1 credit may be awarded if the University deems it fit, based on the actual student effort involved.

Elite

NPTEL Online Certification

(Funded by the Ministry of HRD, Govt. of India)

TOP TOPPER 5%

This certificate is awarded to

JESMI JANE A

for successfully completing the course

Developing Soft Skills and Personality

with a consolidated score of **88** %

Online Assignments	23.96/25	Proctored Exam	64.33/75

Total number of candidates certified in this course: **8393**

Prof. Rajesh M.Hegde
Chairman, Centre for Continuing Education
IIT Kanpur

Sep-Nov 2020
(8 week course)

Prof. Satyaki Roy
NPTEL Coordinator
IIT Kanpur

Indian Institute of Technology Kanpur

swayam

This certificate is computer generated and can be verified by scanning the QR code given below. This will display the certificate from the NPTEL repository, https://nptel.ac.in/noc/

Roll No: NPTEL20HS43S82420174

To
K NIVETHA
89A/2 32ND STREET
RAHMATH NAGAR,PALAYAMKOTTAI
TIRUNELVELI
TAMILNADU - 627002
PH. NO :8778986778

Score	Type of Certificate
>=90	Elite+Gold
75-89	Elite+Silver
>=60	Elite
40-59	Successfully Completed
<40	No Certificate

No. of credits recommended by NPTEL:2
An additional 1 credit may be awarded if the University deems it fit, based on the actual student effort involved.

Elite

NPTEL Online Certification

(Funded by the Ministry of HRD, Govt. of India)

This certificate is awarded to

K NIVETHA

for successfully completing the course

Developing Soft Skills and Personality

with a consolidated score of **84** %

Online Assignments	23.79/25	Proctored Exam	60.19/75

Total number of candidates certified in this course: **8393**

Prof. Rajesh M.Hegde
Chairman, Centre for Continuing Education
IIT Kanpur

Sep-Nov 2020
(8 week course)

Prof. Satyaki Roy
NPTEL Coordinator
IIT Kanpur

Indian Institute of Technology Kanpur

swayam

This certificate is computer generated and can be verified by scanning the QR code given below. This will display the certificate from the NPTEL repository, https://nptel.ac.in/noc/

Roll No: NPTEL21HS02S24470445

To
M SANGATHTHAMIL
36,THANGAM COLONY, 7TH MAIN STREET,
K.T.C NAGAR.
TIRUNELVELI
TAMILNADU - 627011
PH. NO :9994704604

Score	Type of Certificate
>=90	Elite+Gold
75-89	Elite+Silver
>=60	Elite
40-59	Successfully Completed
<40	No Certificate

No. of credits recommended by NPTEL:2
An additional 1 credit may be awarded if the University deems it fit, based on the actual student effort involved.

Elite

NPTEL Online Certification

(Funded by the Ministry of HRD, Govt. of India)

TOP TOPPER 2%

This certificate is awarded to

M SANGATHTHAMIL

for successfully completing the course

Enhancing Soft Skills and Personality

with a consolidated score of **88** %

Online Assignments	24.63/25	Proctored Exam	62.89/75

Total number of candidates certified in this course: **7339**

Prof. Rajesh M.Hegde
Chairman, Centre for Continuing Education
IIT Kanpur

Feb-Apr 2021
(8 week course)

Prof. Satyaki Roy
NPTEL Coordinator
IIT Kanpur

Indian Institute of Technology Kanpur

swayam

This certificate is computer generated and can be verified by scanning the QR code given below. This will display the certificate from the NPTEL repository, https://nptel.ac.in/noc/

Roll No: NPTEL20HS10S22420080

To
MAJIYATHUL AFRINA.S
1C/3 M.K.P HOSPITAL STREET
PALAYAMKOTTAI
TIRUNELVELI
TAMIL NADU - 627002
PH. NO :7845606164

Score	Type of Certificate
>=90	Elite+Gold
75-89	Elite+Silver
>=60	Elite
40-59	Successfully Completed
<40	No Certificate

No. of credits recommended by NPTEL:2
An additional 1 credit may be awarded if the University deems it fit, based on the actual student effort involved.

Elite

NPTEL Online Certification

(Funded by the Ministry of HRD, Govt. of India)

TOP TOPPER 5%

This certificate is awarded to

MAJIYATHUL AFRINA.S

for successfully completing the course

Enhancing Soft Skills and Personality

with a consolidated score of **90** %

Online Assignments	25.00/25	Proctored Exam	64.5/75

Total number of candidates certified in this course: **3466**

Prof. Rajesh M.Hegde
Chairman, Centre for Continuing Education
IIT Kanpur

Feb-Apr 2020
(8 week course)

Prof. Satyaki Roy
NPTEL Coordinator
IIT Kanpur

Indian Institute of Technology Kanpur

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Roll No: NPTEL20HS10S22420080

To validate and check scores: https://nptel.ac.in/noc

This certificate is computer generated and can be verified by scanning the QR code given below. This will display the certificate from the NPTEL repository, https://nptel.ac.in/noc/

Roll No: NPTEL20HS10S22420052

To
MANJU G
PLOT NO 17 DOOR NO 1244/T 6TH MAIN ROAD,
ARUNACHALAPURAM B COLONY, K T C NAGAR
PALAYAMKOTTAI
TIRUNELVELI
TAMIL NADU - 627011
PH. NO :8754104957

Score	Type of Certificate
>=90	Elite+Gold
75-89	Elite+Silver
>=60	Elite
40-59	Successfully Completed
<40	No Certificate

No. of credits recommended by NPTEL:2
An additional 1 credit may be awarded if the University deems it fit, based on the actual student effort involved.

Elite

NPTEL Online Certification

(Funded by the Ministry of HRD, Govt. of India)

This certificate is awarded to

MANJU G

for successfully completing the course

Enhancing Soft Skills and Personality

with a consolidated score of **84** %

Online Assignments	25.00/25	Proctored Exam	58.5/75

Total number of candidates certified in this course: **3466**

Prof. Rajesh M.Hegde
Chairman, Centre for Continuing Education
IIT Kanpur

Feb-Apr 2020
(8 week course)

Prof. Satyaki Roy
NPTEL Coordinator
IIT Kanpur

Indian Institute of Technology Kanpur

Roll No: NPTEL20HS10S22420052

To validate and check scores: https://nptel.ac.in/noc

This certificate is computer generated and can be verified by scanning the QR code given below. This will display the certificate from the NPTEL repository, https://nptel.ac.in/noc/

Roll No: NPTEL21HS02S24470469

To
SABREEN
36A MOHIDEEN MOSQUE NORTH STREET ERUVADI
TAMILNADU - 627103
PH. NO :8189849002

Score	Type of Certificate
>=90	Elite+Gold
75-89	Elite+Silver
>=60	Elite
40-59	Successfully Completed
<40	No Certificate

No. of credits recommended by NPTEL:2
An additional 1 credit may be awarded if the University deems it fit, based on the actual student effort involved.

Elite

NPTEL Online Certification

(Funded by the Ministry of HRD, Govt. of India)

This certificate is awarded to

SABREEN

for successfully completing the course

Enhancing Soft Skills and Personality

with a consolidated score of **82** %

Online Assignments	23/25	Proctored Exam	58.73/75

Total number of candidates certified in this course: **7339**

Prof. Rajesh M.Hegde
Chairman, Centre for Continuing Education
IIT Kanpur

Feb-Apr 2021
(8 week course)

Prof. Satyaki Roy
NPTEL Coordinator
IIT Kanpur

Indian Institute of Technology Kanpur

This certificate is computer generated and can be verified by scanning the QR code given below. This will display the certificate from the NPTEL repository, https://nptel.ac.in/noc/

Roll No: NPTEL20HS10S22420127

To
M . SINDHU
369
MARUDHUR
TIRUNELVELI
TAMIL NADU - 627351
PH. NO :9791245978

Score	Type of Certificate
>=90	Elite+Gold
75-89	Elite+Silver
>=60	Elite
40-59	Successfully Completed
<40	No Certificate

No. of credits recommended by NPTEL:2
An additional 1 credit may be awarded if the University deems it fit, based on the actual student effort involved.

Elite

NPTEL Online Certification

(Funded by the Ministry of HRD, Govt. of India)

This certificate is awarded to

M . SINDHU

for successfully completing the course

Enhancing Soft Skills and Personality

with a consolidated score of **86** %

Online Assignments	24.67/25	Proctored Exam	61.5/75

Total number of candidates certified in this course: **3466**

Prof. Rajesh M.Hegde
Chairman, Centre for Continuing Education
IIT Kanpur

Feb-Apr 2020
(8 week course)

Prof. Satyaki Roy
NPTEL Coordinator
IIT Kanpur

Indian Institute of Technology Kanpur

This certificate is computer generated and can be verified by scanning the QR code given below. This will display the certificate from the NPTEL repository, https://nptel.ac.in/noc/

Roll No: NPTEL20HS10S10726435

To
S.FATHIMA NAFEEZA
32 A KALLANAI STREET
TOWN
TIRUNELVELI
TAMIL NADU - 627006
PH. NO :9865171017

Score	Type of Certificate
>=90	Elite+Gold
75-89	Elite+Silver
>=60	Elite
40-59	Successfully Completed
<40	No Certificate

No. of credits recommended by NPTEL:2
An additional 1 credit may be awarded if the University deems it fit, based on the actual student effort involved.

Elite

NPTEL Online Certification

(Funded by the Ministry of HRD, Govt. of India)

This certificate is awarded to

S.FATHIMA NAFEEZA

for successfully completing the course

Enhancing Soft Skills and Personality

with a consolidated score of **82** %

Online Assignments	24.75/25	Proctored Exam	57/75

Total number of candidates certified in this course: **2108**

Prof. Rajesh M.Hegde
Chairman, Centre for Continuing Education
IIT Kanpur

Feb-Apr 2020
(8 week course)

Prof. Satyaki Roy
NPTEL Coordinator
IIT Kanpur

Indian Institute of Technology Kanpur

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This certificate is computer generated and can be verified by scanning the QR code given below. This will display the certificate from the NPTEL repository, https://nptel.ac.in/noc/

Roll No: NPTEL20HS10S22420129

To
R.SIVA AMBIKA
1/3 WEST STREET,
MURAPPANADU
THOOTHUKUDI
TAMIL NADU - 628252
PH. NO :9025104962

Score	Type of Certificate
>=90	Elite+Gold
75-89	Elite+Silver
>=60	Elite
40-59	Successfully Completed
<40	No Certificate

No. of credits recommended by NPTEL:2
An additional 1 credit may be awarded if the University deems it fit, based on the actual student effort involved.

Elite

NPTEL Online Certification

(Funded by the Ministry of HRD, Govt. of India)

This certificate is awarded to

R.SIVA AMBIKA

for successfully completing the course

Enhancing Soft Skills and Personality

with a consolidated score of **75** %

Online Assignments	20.58/25	Proctored Exam	54.75/75

Total number of candidates certified in this course: **3466**

Prof. Rajesh M.Hegde
Chairman, Centre for Continuing Education
IIT Kanpur

Feb-Apr 2020
(8 week course)

Prof. Satyaki Roy
NPTEL Coordinator
IIT Kanpur

Indian Institute of Technology Kanpur

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This certificate is computer generated and can be verified by scanning the QR code given below. This will display the certificate from the NPTEL repository, https://nptel.ac.in/noc/

Roll No: NPTEL20HS10S22420074

To
S.SHANMUGA PRIYA
7/2B YADAVAR WEST STREET
PALAYAMKOTTAI
TIRUNELVELI
TAMIL NADU - 627002
PH. NO :8148725090

Score	Type of Certificate
>=90	Elite+Gold
75-89	Elite+Silver
>=60	Elite
40-59	Successfully Completed
<40	No Certificate

No. of credits recommended by NPTEL:2
An additional 1 credit may be awarded if the University deems it fit, based on the actual student effort involved.

Elite

NPTEL Online Certification

(Funded by the Ministry of HRD, Govt. of India)

This certificate is awarded to

S.SHANMUGA PRIYA

for successfully completing the course

Enhancing Soft Skills and Personality

with a consolidated score of **83** %

Online Assignments	24.83/25	Proctored Exam	58.5/75

Total number of candidates certified in this course: **3466**

Prof. Rajesh M.Hegde
Chairman, Centre for Continuing Education
IIT Kanpur

Feb-Apr 2020
(8 week course)

Prof. Satyaki Roy
NPTEL Coordinator
IIT Kanpur

Indian Institute of Technology Kanpur

swayam

This certificate is computer generated and can be verified by scanning the QR code given below. This will display the certificate from the NPTEL repository, https://nptel.ac.in/noc/

Roll No: NPTEL20HS10S22420137

To
S SOWTHAL KARISHMA
#1B MANAKAVALAM PILLAI HOSPITAL STREET
TAMILNADU - 627002
PH. NO :9025006895

Score	Type of Certificate
>=90	Elite+Gold
75-89	Elite+Silver
>=60	Elite
40-59	Successfully Completed
<40	No Certificate

No. of credits recommended by NPTEL:2
An additional 1 credit may be awarded if the University deems it fit, based on the actual student effort involved.

Elite

NPTEL Online Certification

(Funded by the Ministry of HRD, Govt. of India)

This certificate is awarded to

S SOWTHAL KARISHMA

for successfully completing the course

Enhancing Soft Skills and Personality

with a consolidated score of **81** %

Online Assignments	24.83/25	Proctored Exam	56.25/75

Total number of candidates certified in this course: **3466**

Prof. Rajesh M.Hegde
Chairman, Centre for Continuing Education
IIT Kanpur

Feb-Apr 2020
(8 week course)

Prof. Satyaki Roy
NPTEL Coordinator
IIT Kanpur

Indian Institute of Technology Kanpur

swayam

Roll No: NPTEL20HS10S22420137

To validate and check scores: https://nptel.ac.in/noc

This certificate is computer generated and can be verified by scanning the QR code given below. This will display the certificate from the NPTEL repository, https://nptel.ac.in/noc/

Roll No: NPTEL20HS10S22420022

To
Y. AFRIN FATHIMA
60, MOTHAI MEERA PILLAI STREET
MELAPALAYAM
TIRUNELVELI
TAMIL NADU - 627005
PH. NO :7810075925

Score	Type of Certificate
>=90	Elite+Gold
75-89	Elite+Silver
>=60	Elite
40-59	Successfully Completed
<40	No Certificate

No. of credits recommended by NPTEL:2
An additional 1 credit may be awarded if the University deems it fit, based on the actual student effort involved.

Elite

NPTEL Online Certification

(Funded by the Ministry of HRD, Govt. of India)

This certificate is awarded to

Y. AFRIN FATHIMA

for successfully completing the course

Enhancing Soft Skills and Personality

with a consolidated score of **79** %

Online Assignments	24.83/25	Proctored Exam	54/75

Total number of candidates certified in this course: **3466**

Prof. Rajesh M.Hegde
Chairman, Centre for Continuing Education
IIT Kanpur

Feb-Apr 2020
(8 week course)

Prof. Satyaki Roy
NPTEL Coordinator
IIT Kanpur

Indian Institute of Technology Kanpur

swayam

This certificate is computer generated and can be verified by scanning the QR code given below. This will display the certificate from the NPTEL repository, https://nptel.ac.in/noc/

Roll No: NPTEL19MA23S32250010

To
AMEER SHEEBA SHERIN. A
53, PITCHUVANNA STREET
PALAYAMKOTTAI
TIRUNELVELI
TAMIL NADU
627002
PH. NO :8248688016

Score	Type of Certificate
>=90	Elite+Gold
75-89	Elite+Silver
>=60	Elite
40-59	Successfully Completed
<40	No Certificate

No. of credits recommended by NPTEL:2
An additional 1 credit may be awarded if the University deems it fit, based on the actual student effort involved.

Elite

NPTEL Online Certification

(Funded by the Ministry of HRD, Govt. of India)

This certificate is awarded to

AMEER SHEEBA SHERIN. A

for successfully completing the course

Introduction to Abstract and Linear Algebra

with a consolidated score of **83** %

Online Assignments	24.58/25	Proctored Exam	58.5/75

Total number of candidates certified in this course: **538**

A. Goswami

Prof. Adrijit Goswami
Dean, Continuing Education & NPTEL Coordinator
IIT Kharagpur

Aug-Oct 2019
(8 week course)

Indian Institute of Technology Kharagpur

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Special Quota if any	

பதிவு அஞ்சல் ஒப்புகையுடன் : –

ந.க.எண். A4/44294/2017 ..... மாநகர / மாவட்ட காவல் அலுவலகம்

நாள் 10/2017 திருநெல்வேலி ..... மாநகரம் / மாவட்டம்

பணிநியமன ஆணை

பொருள் : காவல் – 2017ம் ஆண்டு இரண்டாம் நிலை ஆண்/பெண்/மூன்றாம் பாலினத்தவர்ஹ காவலராக மாவட்ட / மாநகர ஆயுதப்படையில் பணிநியமனம் செய்தல் – பணி நியமன ஆணை – வழங்கப்படுகிறது.

திரு / செல்வி / திருமதி ..... த.பெ/க.பெ ..... ஆகிய நீவிர், தமிழ்நாடு சீருடைப் பணியாளர் தேர்வு மையத்தால் நடத்தப்பட்ட 2017ம் ஆண்டுக்கான காவலர் தேர்வு மற்றும் காவல் விசாரணை மற்றும் மருத்துவ பரிசோதனை ஆகியவற்றில் தெரிவு செய்யப்பட்டு, மாவட்ட / மாநகர ஆயுதப்படையில் இரண்டாம் நிலை ஆண் / பெண் காவலராக பணியமர்த்தப்படுகிறீர்.

2. நீவிர், மேற்படி பதவிக்குரிய அடிப்படை பயிற்சிக்கு அறிக்கை செய்யும் போது கல்வி, வயது, ஜாதி ஆகியவற்றின் மூல சான்றிதழ்கள் மற்றும் இதர சான்றிதழ்கள் ஆகியவற்றை சம்பந்தப்பட்ட தற்காலிக காவல் பயிற்சிப் பள்ளி முதல்வரிடம் சமர்ப்பிக்கப்பட்டு, அவைகள் முன்னர் நீவிர் அளித்துள்ள நிழற்பட நகல்களுடன் ஒப்பிட்ச சரிபாக்கவேண்டும். இந்த பணி நியமனத்திற்காக நீவிர் ஏற்கனவே சமர்ப்பித்த விவரங்கள் தவறானவை எனத் தெரிய வந்தாலோ அல்லது குற்ற வழக்கில் சம்மந்தப்பட்டிருந்தாலோ, குற்ற வழக்கு சம்மந்தப்பட்ட விவரங்களை மறைத்து காவல் விசாரணை அறிக்கையை பூர்த்தி செய்து அது பின்னர் கண்டறியப்பட்டாலோ, இந்த நியமன ஆணை உடனடியாக ரத்து செய்யப்படும் என்பதை அறியவும். காவல் பயிற்சியின் போது உமக்கு ரூபாய் 18200–57900 என்ற சம்பள விகிதத்தில் சம்பளமும் ற்றும் நடைமுறையில் உள்ள இதர படிகளும் வழங்கப்படும்.

3. இந்த பதவியில் நீவிர் மூன்று ஆண்டு காலத் தொடர் பணியில் இரண்டு வருட காலம் தகுதிகாண்பருவத்தில் வைக்கப்படுவீர். இந்த தகுதிகாண் பருவத்தில், உமது பணி திருப்திகரமாக இல்லையெனில் பதவி நீக்கம் செய்யப்படுவீர்.

4. அரசு ஆணை பல்வகை எண். 206 உள் (கா. 3) துறை, நாள் 07–03–2012 ன் படி நீவிர் ஏழுமாத காலம் பயிற்சி பள்ளியில் உறைவிடப் பயிற்சியும், ஒரு மாத காலம் மாவட்டம் / நகரத்தில் நடைமுறை பயிற்சியும், ஆக எட்டுமாத காலம் அடிப்படை பயிற்சிப் பெற வேண்டும். இவை தவிர சிறப்புக் காவல் / சேமப்படை ஆகியப் பிரிவுகளில் பணிபுரிந்து தாலுகா காவல் பிரிவு மாற்றலுக்கு முன் ஒருமாத கால அறிமுகப் பயிற்சி (Pre-induction Couse) காவல் பயிற்சிப் பள்ளியில் பெற வேண்டும். பயிற்சிக் காலத்தில் உமது நடத்தை, நல்லொழுக்கம் மற்றும் பயிற்சியை மேற்கொள்ளும் திறன் ஆகியவைகள் மீது ஏதேனும் கவனமின்மை, பற்றாக்குறை தென்படின் பதவி நீக்கம் செய்யப்படுவீர்.

5. மேலும் நீவிர் காவல் பணி நிமித்தம் காரணமாக தமிழ்நாட்டின் எந்த மாவட்டத்திலும், காவல்துறையின் எந்த அணி மற்றும் பிரிவிலும், தேவை ஏற்படின் பிற மாநிலங்களிலும், பணி செய்ய வேண்டும் என்ற நிபந்தனையுடன், தேர்வு செய்யப்பட்டுள்ளீர் என்பதும் தெரிவிக்கப்படுகிறது. இதற்கான இசைவு கடிதம் பயிற்சியில் சேர்ந்த உடன் உம்மால் பூர்த்தி செய்து பயிற்சிப்பள்ளி முதல்வரிடம் கொடுக்கப்பட வேண்டும்.

6. உமக்கு அடிப்படை பயிற்சி 01–11–2017 அன்று முற்பகல் முதல் தொடங்கப்படவுள்ளது. எனவே இது தொடர்பாக சான்றிதழ்கள் சரிபார்ப்பு மற்றும் காவல் நடைமுறைகளுக்காக நீவிர், 31–10–2017 அன்று பிற்பகல் ____1 மணி____ காவல் பயிற்சிப்பள்ளியில் ஆஜராக வேண்டும். பயிற்சிக்குரிய சீருடைகள் பயிற்சிப் பள்ளியில் உமக்கு வழங்கப்படும். குறிப்பிட்ட தேதியில் நீவிர் பயிற்சிக்கு ஆஜராகாவிடில் உமது தேர்வு ரத்து செய்யப்படும் என்பதை அறியவும். நீவிர் அரசு/பொதுத்துறை / தனியார் நிறுவனத்தில் பணியாற்றிக் கொண்டிருந்தால், அப்பணியிலிருந்து விடுவிக்கப்பட்டதற்கான ஆணை அல்லது பணிவிலகல் ஏற்பு ஆணையினைப் பயிற்சிக்கு ஆஜராகும்போது அளிக்க வேண்டும்.

7. நீவிர், பயிற்சிக்கு ஆஜராகும்போது இத்துடன் இணைக்கப்பட்டுள்ள பட்டியலில் குறிப்பிட்டுள்ள பொருட்கள் மற்றும் முன்பணத் தொகை ஆகியவைகளை உடன் எடுத்து வருமாறு அறிவுறுத்தப்படுகிறீர். பயிற்சியில் சேருவதற்காக பணப்படி மற்றும் தினப்படி ஏதுவும் வழங்கப்படமாட்டாது.

இணைப்பு – பயிற்சியில் சேரும்போது கொண்டு
வரவேண்டியவற்றின் விவரப்பட்டியல்

காவல் கண்காணிப்பாளர் / துணை ஆணையாளர்

திருநெல்வேலி மாவட்டம் / மாநகர்

பெறுநர் :

3011236
A யாசிக் அன்வர்,
S/o. அப்துல் மஜீத்,
4/13, அம்பேத்கர் தெரு,
[illegible], [illegible] (Po),
செங்கோட்டை (தாலுகா),
திருநெல்வேலி – 627807

இரண்டாம்நிலை காவலர் (ஆண், பெண் & மூன்றாம் பாலினம்), இரண்டாம்நிலை சிறைக்காவலர் (ஆண் & பெண்) மற்றும் தீயணைப்போர் பதவிகளுக்கான பொதுத்தேர்வு- 2017

Physical Measurement Test, Endurance Test, Physical Efficiency Test and Original Certificate Verification for Common Recruitment for the posts of Gr.II Police Constables (Men, Women & Third Gender), Gr. II Jail Warders (Men & Women) and Firemen for the year 2017

நுழைவுச்சீட்டு/ ADMIT CARD

TNUSRB

தமிழ்நாடு சீருடைப் பணியாளர் தேர்வுக் குழுமம்,
பழைய காவல் ஆணையாளர் அலுவலக வளாகம்,
பாந்தியன் சாலை,
எழும்பூர், சென்னை - 08.
தொலைபேசி எண் :044-28413658
இணையதளம்:www.tnusrbonline.org

Tamil Nadu Uniformed Services Recruitment Board,
Old Commissioner of Police Office Campus,
Pantheon Road,
Egmore, Chennai -08.
Contact Number:044-28413658
Website: www.tnusrbonline.org

பதவி / Post Name	விண்ணப்பதாரரின் பெயர் / Name of the Candidate	சேர்க்கை எண் / Enrolment Number
இரண்டாம்நிலை காவலர்/ இரண்டாம்நிலை சிறைக்காவலர் மற்றும் தீயணைப்போர் / Gr.II Police Constable / Gr. II Jail Warder and Fireman.	CHINNADURAI E	3010605

தேர்வு மையத்தின் பெயர் மற்றும் முகவரி / Name & Address of the Examination Centre/Venue
St. Xavier's College Ground, Near Krishna Hospital, Palayamkottai 627 002.

தேர்வு நாள்/ Examination Date	அறிக்கை நேரம் /காலை Reporting Time
29-Jul-2017 (Saturday)	6.00AM

விண்ணப்பதாரர்களுக்கான அறிவுரைகள்

1. உடல்கூறு அளத்தல் மற்றும் உடல்தகுதித் தேர்வில் தேர்ச்சிப்பெறறோர் உடற்திறன் போட்டிகளுக்கு அழைக்கப்படுவார்கள் உடற்திறன் போட்டிகளில் தேர்ச்சிபெற்றவர்கள் அசல் சான்றிதழ் சரிபார்தலுக்கு உட்படுத்தப்படுவார்கள்

2. உடல்கூறு அளத்தல் தேர்வில் உயரம் மற்றும் மார்பளவு ஆகியவற்றில் நிராகரிக்கப்பட்டோர், ஏதேனும் மேல்முறையீடு செய்ய விரும்பினால் விண்ணப்பதார்கள் உடனே அங்குள்ள உதவிகருழுத்தலைவர் (Sub-Committee Chairman) அவர்களை அணுகி மேல்முறையீடு செய்யலாம் உங்கள் முறையீட்டின் பெரில் உதவிகருழுத்தலைவர், மீண்டும் ஒருமுறை உடல்கூறு உயரம் / மார்பளவு அளப்பார்கள் உடல்கூறு அளத்தல் சம்பந்தமாக பினர் பெறப்படும் எந்தவொரு முறைமீடும் ஏற்றுக்கொள்ளப்படமாட்டாது

3. கீழே குறிப்பிடப்பட்டுள்ள சான்றுகள் சரிபார்க்கப்பட உள்ளதால் இவற்றின் அசல் சான்றிதழ்களை தவறாமல் கொண்டு வரவும் ஏற்கனவே விளமபரத்தில் கூறியுள்ளபடி விண்ணப்பத்துடன் இணைக்கப்பட்டுள்ள நகல்களின் அசல் சான்றிதழ்கள் மட்டுமே பரிசீலனைக்கு ஏற்றுக்கொள்ளப்படும் பின்னர் சமர்பிக்கப்படுகின்ற சான்றிதழ்கள் பரிசீலனைக்கு ஏற்றுக்கொள்ளப்படமாட்டாது

4.

அ	பத்தாம் வகுப்பு தேர்ச்சிபெற்றதற்கான சான்றிதழ்
ஆ	பள்ளி / கல்லூரி மாற்றுச்சான்றிதழ் / பத்தாம் வகுப்பில் தமிழ் பயிற்று மொழியில் படித்ததற்கான சான்று
இ	சாதிசான்றிதழ் (உரிய அலுவலரால் வழங்கப்பட்டது)
ஈ	முன்னாள் இராணுவத்தினர் மற்றும் மத்திய துணை இராணுவப்படையினர் பணியிலிருந்து விடுவிக்கப்பட்டதற்கான சான்றிதழ் (Discharge Certificate)
உ	இத்தேர்விற்கு விண்ணப்பம் பெறப்படும் கடைசி தேதிக்கு பின்னர் ஓராண்டு காலத்திற்குள் ஓய்வுபெறவுள்ள இராணுவ மற்றும் மத்திய துணை இராணுவ படை வீர்கள் அவர்களது படைபிரிவு அலுவலரிடத்தில் (Commanding Officer) உரிய படிவத்தில் பெற்ற சான்றிதழ்
ஊ	ஆதரவற்றவிதவை எனில் அதற்கான சான்று RDO / Asst.Collector / Sub-Collector இவர்களிடமிருந்து பெறப்பட்ட ஆதரவற்றவிதவை சான்றிதழ் (உரிய படிவத்தில்)
எ	காவல்துறை, சிறைத்துறை மற்றும் தீயணைப்புத்துறை களப்பணியாளர் / அமைச்சப்பணியாளர் வாரிசுதாரராக இருப்பின், வாரிசு சான்றிதழ் SP/DC/CMT அல்லது சிறைகண்காணிப்பாளர் அல்லது தீயணைப்புத்துறை மாவட்ட அலுவலர்கள் மற்றும் அவர்களைவிட உயர்ந்த பதவியில் உள்ளவர்களிடமிருந்து பெற்று விண்ணப்பத்துடன் இணைத்தனுப்பிய வாரிசுசான்றிதழின் அசல் சான்றிதழ் சரிபார்த்தலின் போது சமர்பிக்கப்பட வேண்டும் அவ்வாறு சமர்பிக்காத விண்ணப்பதார்கள் வாரிசு பிரிவின் கீழ் ஏற்றுக் கொள்ளப்படமாட்டார்கள் இவர்கள் பொதுப்பிரிவு விண்ணப்பதாரர்களாகவே பாவிக்கப்படுவார்கள்
ஏ	ஏற்கனவே விளம்பரத்தில் கூறியுள்ளபடி தேசியமாணவர்படை, தேசியசமூகசேவை, நாட்டுநலப்பணித்திட்டம், விளையாட்டுகள், தடகளப்போட்டிகள் ஆகியவற்றில் ஏதாவது மெச்சத்தகுந்த சான்றிதழ்களை விண்ணப்பதார்கள் பெற்றிருந்து அவற்றை விண்ணப்பத்துடன் இணைத்திருந்தால், அவற்றின் அசல் சான்றிதழ்கள் மட்டுமே சரிபார்க்கப்படும் அவர்களுக்கு விதிமுறைகளுக்கு ஏற்ப, உயர்ந்தபட்சம் 5 மதிப்பெண்களுக்கு மிகாமல் அளிக்கப்படும்
ஐ	10% விளையாட்டு ஒதுக்கீடு விண்ணப்பதார்கள், 22.01.2012-க்கு பின்னர் அங்கீகரிக்கப்பட்ட 15 விளையாட்டு போட்டிகளில் பங்கு கொண்டமைக்கான படிவம்-I, படிவம்-II, படிவம்-III ஐ சமர்ப்பிக்க வேண்டும்

5. இத்தேர்வுக்கு வருகையில் இந்த அழைப்புக் கடிதத்தை தவறாமல் கொண்டு வரவும்

Member Secretary
உறுப்பினர் செயலாளர்

Canara Bank

REF : MDUC HRM 2246 2019

PROCEEDINGS OF THE GENERAL MANAGER DT 03.09.2019

SUB: APPLICATION FOR EMPLOYMENT IN THE BANK, OF SMT BAGAVATHY PRIYA B

1. **SMT BAGAVATHY PRIYA B** is hereby employed as a Probationary Single Window Operator on his/her selection by CANARA BANK-RECRUITMENT OF SINGLE WINDOW OPERATOR –PROJECT.

2. His/Her appointment in the Clerical Cadre in the Bank is strictly subject to his/her acceptance of the terms and conditions set out hereunder and he/she being found medically fit for the appointment, by a Regd. Medical Practitioner or any Medical Officer not below the rank of Asst. Civil Surgeon.

3. He/She shall be fixed on a Basic Pay of **Rs.11765.00 P.M.** in the Pay Scale of **Rs.11765-655/3-13730-815/3-16175-980/4-20095-1145/7-28110-2120/1-30230-1310/1-31540.** He/She shall be eligible for corresponding Dearness Allowance and other allowances, applicable in the prescribed clerical scale as per the provisions of the settlements / awards to the award staff of the Bank, in force from time to time.

4. During the period of probation he/she shall be paid salary and emoluments as prescribed for clerical scale as per the provisions of the settlements / awards to the award staff of the Bank, in force from time to time.

BASIC	DA	HRA	SPL.PAY
11765.00 *	As per Index Level	Depending upon the place of posting.	As Applicable

*** In case He/She is a graduate from a recognised University, he/she will be eligible for two increments as per norms.**

5. While he/she shall be eligible for Pay, allowances and other perquisites as per the Bipartite settlement, as modified from time to time, perquisites and other facilities which are not within the purview of Industrial Level Bipartite Settlement, may be applied to him/her on such basis, as may be decided by the Bank from time to time.

6. If he/she is confirmed in the services of the Bank his/her salary and emoluments will be such as would be set out in the order of confirmation.

7. He/She shall abide by the rules and regulations as provided for in the relevant settlements / awards as applicable to the award staff of the Bank, in force, from time to time.

8. He/She is required to execute a Service Agreement in Form-12 set out in Chapter VI of the "Service Code" of the Bank and govern himself /herself in accordance therewith.

9. He/She shall be on probation for a period of SIX Months from the date of joining, which may be extended by a further period not exceeding 3 months. Notwithstanding what is stated herein his/her services are liable to be dispensed with at the sole discretion of the Bank, without assigning any reasons therefore but with one month's notice or on payment of a month's salary and allowance, in lieu of such notice.

Human Resources Management Section
Circle Office
East Veli Street
Madurai – 625 001

T 0452 - 2333828

E hrmcomdu@canarabank.com
www.canarabank.com

Telephone 2412254

Army Recruiting Office
Garuda Lines
Cantonment
Tiruchirappalli-620001

DI/431/ 2019-20

05 Jan 2021

Name A.SUDALAI RAJA S/o ARIYANAYAGAM.L
House No 3/159 Street EAST ST
Vill ANNAL PATTI Post VEPPANKULAM
Teh KAYATHAR Distt THOOTHUKUDI
Pin 628714 State TAMIL NADU
Ph No 3248825208 9943379635

RESULT OF COMMON ENTRANCE EXAMINATION 27 DEC 2020 : ARO TRICHY

1 Please refer common entrance Examination held on **27 Dec 20** for **Sol Tech** and roll No CHE/TR/ST/271220/_____

2 You have provisionally been selected for recruitment in on the basis of the merit list of Common Entrance Examination (CEE) held on 27 Dec 2020.

3 You are hereby directed to report on 11 Jan 2021 alonwith the followng documents in original, for enrolment formalities and subsequent despatch to training centre -

(a) All Original Education Certificate and two Xerox copies duly attested by Headmaster/Principal.

(b) Original Transfer Certificate and two Xerox copies duly attested by Headmaster/Principal in English

(c) E-Nativity Certificate in triplicate duly attested by DM/SDM of concerned Tehsil/Taluk.

(d) E-Community Certificate in triplicate duly attested by DM/SDM of concerned Tehsil/Taluk.

(e) Certificate from Headmaster/Principal as per copy attached.

(f) Pre-Verification Form from Police Station concerned as per copy attached.

(g) Affidavit of details of family members as per copy attached.

(h) Character/Pre-Verification Certificate from Village Administrative Officer (VAO) alongwith proof of date of birth of brothers below 18 years of age as per copy attached.

} With two Xerox duly attested.

(j) Unmarried Cert signed by Village Sarpanch/Ward Master/SDM/Tehsildar alongwith two Xerox duly attested.

(k) Passport size recent colour photographs (20x self, 05xJoint with mother, 05xgroup family photo).

(l) Photocopy of Aadhaar Card and PAN Card in triplicate duly attested.

(m) Original NCC certificate A/B/C and sports certificate alongwith two Xerox duly attested.

(n) Parent Consent Certificate in triplicate (Only for those who are below 18 years age duly signed by parent/guardian and countersigned by a Gazetted Officer)

(o) Relationship Certificate from Records Office in original with father's discharge book/pay book (Son of Servicemen/Son of Ex-servicemen/Son of Widow/Son of War Widow) alongwith two Xerox duly attested.

4. **It is further informed that No cutting or overwriting on certificates will be accepted** Only amendments if any will be permitted if signed by issuing authority duly affixed the same stamp as the original.

5 **All Certificate in English in compulsory. Only English Rubber stamp will be affixed on the above documents No stamp in Tamil will be accepted**

6 Name of candidate and date of birth should be as per SSLC marks sheet, Father's Name as per Transfer Certificate, Caste as per Community Certificate and address as per Nativity Certificate.

7 Your final selection/enrolment will depend on your remaining physically/medically fit and production of genuine certificate as mentioned above prior to dispatch to Training Centre.

8 This letter stands automatically nullified/cancelled at the time of despatch, if any discrepancy is found in medical/physical/both/lack of production of documents/hiding of facts.

Army Recruiting Office Tiruchirappalli

Colonel
Director Recruiting
Army Recruiting Office
Tiruchirappalli

Print Close

2018/SET/17/130

TAMILNADU STATE ELIGIBILITY TEST (TNSET 2018)

Nodal Agency : Mother Teresa Women's University-Kodaikanal

TNSET 2018 - Qualified Intimation Slip

Candidate Name : BENAZIER FATHIMA S

Register No : 26127656

Subject : 17 - Mathematical Sciences

Category : BCM

Aggregate Marks secured in Paper I and Paper II (Out of 300)	Percentage Marks secured	Cut-off Marks for Qualifying Category	Result Status
152	50.66	150	Qualified
Qualified Under BCM Category			

MEMBER SECRETARY
TNSET-2018

Note :

This intimation slip is available in respect of qualified candidates only and meant for information purpose. This is not to be considered as Eligibility Certificate.

MANONMANIAM SUNDARANAR UNIVERSITY
CENTRE FOR RESEARCH
ABISHEKAPATTI, TIRUNELVELI – 627 012, TAMILNADU, INDIA

DR. K. SENTHAMARAI KANNAN
DIRECTOR

REF : MSU/RES/R1/JUNE2017 Date : August 10, 2017

Ph.D., Programme Commencement Order

To

SULAIGA BEEVI.M
888 H1 30th Street, Rahamath Nagar
Palayamkottai
Tamil Nadu, Thirunelveli, Pincode - 627002
Mobile No. : 9940163310, Email ID : ssulaiga@gmail.com

Sir/Madam,

Sub: Registration for doing Ph.D., programme - Date of Commencement of Research work - Intimation - Reg

Ref: Counseling attended by the candidate.

* * * * * * * * * * * * * * * * *

With reference to the above, you are provisionally registered for Ph.D., Programme as detailed below **:**

1.	Name of the Scholar	: SULAIGA BEEVI.M
2.	Registration No.	: 17214012271151
3.	Discipline	: Inter Disciplinary
	Inter Disciplinary Detail	: MATHEMATICS - STATISTICS
4.	Gender	: Male
5.	Social Category (Community)	: BCM
6.	Nationality	: INDIAN
7.	PWD Status	: Not Applicable
8.	Admission Based On	: M.Phil
9.	Name of the Supervisor	: Dr K SENTAMARAI KANNAN
10.	Name of the Co-Supervisor	: DR S SYED ALI FATHIMA
11.	Mode	: FULL TIME
12.	Research Centre	: Manonmaniam Sundaranar University, Tirunelveli.
13.	Date of Commencement	: 10.08.2017
14.	Proposed Title	: FUZZY STOCHASTIC MODELING IN INDUSTRIAL APPLICATIONS
15.	Doctoral Commmittee Members Details	: 1. DR A LOGANATHAN Professor, Department of Statistics, Manonmaniam Sundaranar University, Tirunelveli - 627 012. Mobile No. : 9486634993, Email ID : aln_24@rediffmail.com 2. DR C VIJAYALAKSHMI Professor, Mathematics Division, VIT University, Chennai. Mobile No. : 9444889819, Email ID : Nil

10/08/17 ASST 10/8/17 SUPDT 10/8/17 AR 10/08/17 DIRECTOR

DR. K. SENTHAMARAI KANNAN
DIRECTOR

Copy to :

Guide : Dr K SENTAMARAI KANNAN Professor, Department of Statistics Manonmaniam Sundaranar University, Tirunelveli Tamil Nadu Thirunelveli, Pincode - 627012 Mobile No. : 9443436364 Email ID : senkannan2002@gmail.com	**Co-Guide :** DR S SYED ALI FATHIMA Assistant Professor Department of Mathematics Sadakathullah Appa College Tamil Nadu, Thirunelveli Pincode - 627011 Mobile No. : 9965337934 Email ID : syedalifathima2014@gmail.com
DC Member 1 : DR A LOGANATHAN Professor, Department of Statistics, Manonmaniam Sundaranar University, Tirunelveli - 627 012.	**DC Member 2 :** DR C VIJAYALAKSHMI Professor, Mathematics Division, VIT University, Chennai.
Head of Department, Inter Disciplinary	

Instructions

- All communication (letter) to this University should be forwarded by Supervisor / Co-Supervisor (wherever applicable)
- Candidates with M.Phil., qualification should earn 8 credits in the following options: 2 course works of 4 credits each (or) one course work of 4 credits and 1 mini project of 4 credits
- Fee of Rs. 5000/- for every sitting of Doctoral Committee meeting should be paid to the University before the conduct of every meeting
- TA / DA payable to the Doctoral Committee member by the Scholar/Supervisor/Co-Supervisor is to and fro II AC Railway fare and sitting fee of Rs. 500/- and refreshment / contingency cost of Rs.500/- (Bills to be submitted) which will be reimbursed on submission of bills.
- You should pay the Research fee of Rs. 15300 /- per annum on or before June 30th of every year till the submission of thesis to the University through Demand Draft drawn in favour of "The Registrar Manonmaniam Sundaranar University", payable at Tirunelveli issued by any nationalised bank or through challan in Indian Bank. M.S University branch or through challan in state bank of India, Power Jothi account to MSU A/c 32723606944.
- For full-time scholars with M.Phil. qualification minimum period of the programme is 2 years and for PG holders 3 years.
- For part-time scholars with M.Phil. qualification minimum period is 3 years and for PG holders 4 years. The maximum period for all scholars is 6 years.
- It is also informed that the entire duration of the Ph.D., Research work is governed by the Ph.D., Regulations of 01.07.2016.
- For Details of functions of Doctoral Committee refer revised Ph.D., Research Guidelines w.e.f 01.07.2016 under the Head Doctoral committee(1.7)

MANONMANIAM SUNDARANAR UNIVERSITY
Accredited with 'B' Grade by NAAC
ABISHEKAPATTI, TIRUNELVELI – 627 012, TAMILNADU, INDIA
Centre for Research

Dr.K.SENTHAMARAI KANNAN
DIRECTOR

REF:MSU/RES/R1/JULY 2018 Date : 05-July-2018

Ph.D.,Programme Commencement Order

To

Vasanthi Devi S
B-79,7TH STREET,,7TH CROSS STREET, TNHB COLONY,
KTC NAGAR
Thirunelveli Tamil Nadu 627011
Mobile No :9489015504 ,Email Id :s.v.devi1994@gmail.com

Sir/Madam,

Sub: Registration for doing Ph.D., programme - Date of Commencement of Research work - Intimation-Reg

Ref: Counseling attended by the candidate.

* * * * * * * * * * * * * * * * * *

With reference to the above, you are provisionally registered for Ph.D., Programme as detailed below :

1.	Name of the Scholar	: Vasanthi Devi S
2.	Registration No	: 18211192092008
3.	Discipline	: Mathematics
4.	Gender	: Female
5.	Social Category (Community)	: SC
6.	Nationality	: INDIAN
7.	PWD Status	: Not Applicable
8.	Admission Based On	: M.Phil
9.	Name of the Supervisor	: DR. N. MOHAMED RILWAN
10.	Name of the Co-Supervisor	: NIL
11.	Mode	: FULL TIME
12.	Research Centre	: SADAKATHULLAH APPA COLLEGE , PALAYAMKOTTAI
13.	Date of Commencement	: 05.07.2018
14.	Proposed Title	: A STUDY ON GRAPHS FROM VARIOUS SPACES
15.	Doctoral Committee Members Details	: 1. Dr.S. Furthous Fathima ASSISTANT PROFESSOR, DEPARTMENT OF MATHEMATICS, SADAKATHULLAH APPA COLLEGE, TIRUNELVELI. 2. DR. K. Selvakumar ASSISTANT PROFESSOR, DEPARTMENT OF MATHEMATICS, MANONMANIAM SUNDARANAR UNIVERSITY, TIRUNELVELI.

ASSISTANT SUPERINDENT ASSISTANT REGISTRAR DIRECTOR

MANONMANIAM SUNDARANAR UNIVERSITY
Accredited with 'B' Grade by NAAC
ABISHEKAPATTI, TIRUNELVELI – 627 012, TAMILNADU, INDIA
Centre for Research

Dr.K.SENTHAMARAI KANNAN
DIRECTOR

REF:MSU/RES/R1/JULY 2018 Date : 05-July-2018

Ph.D.,Programme Commencement Order

To

A NILOFER
3/72,Middle Street
Periyathalai
Thoothukudi Tamil Nadu 628705
Mobile No :7558181332 ,Email Id :lourdhunilofer@gmail.com

Sir/Madam,

Sub: Registration for doing Ph.D., programme - Date of Commencement of Research work - Intimation-Reg

Ref: Counseling attended by the candidate.

* * * * * * * * * * * * * * * * * *

With reference to the above, you are provisionally registered for Ph.D., Programme as detailed below :

1.	Name of the Scholar	: A NILOFER
2.	Registration No	: 18221192092017
3.	Discipline	: Mathematics
4.	Gender	: Female
5.	Social Category (Community)	: MBC
6.	Nationality	: Indian
7.	PWD Status	: Not Applicable
8.	Admission Based On	: M.Phil
9.	Name of the Supervisor	: DR. N. MOHAMED RILWAN
10.	Name of the Co-Supervisor	: NIL
11.	Mode	: PART TIME INTERNAL
12.	Research Centre	: SADAKATHULLAH APPA COLLEGE , PALAYAMKOTTAI
13.	Date of Commencement	: 05.07.2018
14.	Proposed Title	: A STUDY ON LABELING OF ALGEBRAIC STRUCTURED GRAPHS
15.	Doctoral Committee Members Details	: 1. DR M HIMAYA JALEELA BEGUM ASSISTANT PROFESSOR, MATHEMATICS, SADAKATHULLAH APPA COLLEGE, TIRUNELVELI 2. DR R KALA PROFESSOR, DEPARTMENT OF MATHEMATICS, MS UNIVERSITY, TIRUNELVELI-12

ASSISTANT SUPERINDENT ASSISTANT REGISTRAR DIRECTOR

MANONMANIAM SUNDARANAR UNIVERSITY

CENTRE FOR RESEARCH

ABISHEKAPATTI, TIRUNELVELI – 627 012, TAMILNADU, INDIA

DR. K. SENTHAMARAI KANNAN
DIRECTOR

REF : MSU/RES/R1/JANUARY2018 Date : January 10, 2018

Ph.D., Programme Commencement Order

To

SYED HUSSAIN A
124, SYED UTHUMAN APARTMENT , SEETHAKATHI STREET
VIRUDHUNAGAR
Tamil Nadu, Virudhunagar, Pincode - 626001
Mobile No. : 8667539347, Email ID : hussainmphil@gmail.com

Sir/Madam,

Sub: Registration for doing Ph.D., programme - Date of Commencement of Research work - Intimation - Reg

Ref: Counseling attended by the candidate.

****

With reference to the above, you are provisionally registered for Ph.D., Programme as detailed below :

1.	Name of the Scholar	: SYED HUSSAIN A
2.	Registration No.	: 18131282091017
3.	Discipline	: Mathematics
4.	Gender	: Male
5.	Social Category (Community)	: BCM
6.	Nationality	: INDIAN
7.	PWD Status	: Not Applicable
8.	Admission Based On	: M.Phil
9.	Name of the Supervisor	: DR. N. MOHAMED RILWAN
10.	Name of the Co-Supervisor	: Dr. S. Nithya
11.	Mode	: PART TIME EXTERNAL
12.	Research Centre	: St. Xavier's College (Autonomous), Palayamkottai
13.	Date of Commencement	: 10.01.2018
14.	Proposed Title	: AN ANALYTIC STUDY ON LABELLED GRAPHS
15.	Doctoral Commmittee Members Details	: 1. DR S SYED ALI FATHIMA Assistant Professor of Mathematics, Sadakathullah Appa College, Tirunelveli Mobile No. : 9965337934, Email ID : syedalifathima2014@gmail.com 2. DR K SELVAKUMAR Assistant Professor of Mathematics, Manonmaniam Sundaranar University, Tirunelveli Mobile No. : 9442448593, Email ID : selva_158@yahoo.co.in

10/1/18 ASST 10/1/18 SUPDT 10.1.18 AR

10/01/18 DIRECTOR

MANONMANIAM SUNDARANAR UNIVERSITY
Accredited with 'B' Grade by NAAC
ABISHEKAPATTI, TIRUNELVELI – 627 012, TAMILNADU, INDIA
Centre for Research

Dr.K.SENTHAMARAI KANNAN
DIRECTOR

REF:MSU/RES/R1/JULY 2018 Date : 05-July-2018

Ph.D.,Programme Commencement Order

To

AYSHA APROSE M
8-48,Muslim middle street
thalaiyuthu
Thirunelveli Tamil Nadu 627357
Mobile No :7418111858 ,Email Id :roseshsjan@gmail.com

Sir/Madam,

Sub: Registration for doing Ph.D., programme - Date of Commencement of Research work - Intimation-Reg

Ref: Counseling attended by the candidate.

* * * * * * * * * * * * * * * * * *

With reference to the above, you are provisionally registered for Ph.D., Programme as detailed below :

1.	Name of the Scholar	: AYSHA APROSE M
2.	Registration No	: 18211192092013
3.	Discipline	: Mathematics
4.	Gender	: Female
5.	Social Category (Community)	: BCM
6.	Nationality	: Indian
7.	PWD Status	: Not Applicable
8.	Admission Based On	: M.Phil
9.	Name of the Supervisor	: Dr. S. Syed Ali Fathima
10.	Name of the Co-Supervisor	: NIL
11.	Mode	: FULL TIME
12.	Research Centre	: SADAKATHULLAH APPA COLLEGE , PALAYAMKOTTAI
13.	Date of Commencement	: 05.07.2018
14.	Proposed Title	: A STUDY ON ALGEBRAIC TOPOLOGY
15.	Doctoral Committee Members Details	: 1. DR S FIRTHOUS FATIMA ASSISTANT PROFESSOR, DEPARTMENT OF MATHEMATICS, SADAKATHULLAH APPA COLLEGE, TIRUNELVELI 2. DR M ANITHA ASSISTANT PROFESSOR, MATHEMATICS, RANI ANNA GOVERNEMENT COLLEGE FOR WOMEN, TIRUNELVELI

ASSISTANT SUPERINDENT ASSISTANT REGISTRAR DIRECTOR

MANONMANIAM SUNDARANAR UNIVERSITY
Accredited with 'B' Grade by NAAC
ABISHEKAPATTI, TIRUNELVELI – 627 012, TAMILNADU, INDIA
Centre for Research

Dr.K.SENTHAMARAI KANNAN
DIRECTOR

REF:MSU/RES/R1/JULY 2018 Date : 05-July-2018

Ph.D.,Programme Commencement Order

To

RUBY PRISCILLA A
A40, 4th Cross Street,NGO -A Colony
Perumalpuram Post
Thirunelveli Tamil Nadu 627007
Mobile No :9698265697 ,Email Id :rubypriscilla23@gmail.com

Sir/Madam,

Sub: Registration for doing Ph.D., programme - Date of Commencement of Research work - Intimation-Reg

Ref: Counseling attended by the candidate.

* * * * * * * * * * * * * * * * * *

With reference to the above, you are provisionally registered for Ph.D., Programme as detailed below :

1.	Name of the Scholar	: RUBY PRISCILLA A
2.	Registration No	: 18221192092003
3.	Discipline	: Mathematics
4.	Gender	: Female
5.	Social Category (Community)	: BC
6.	Nationality	: Indian
7.	PWD Status	: Not Applicable
8.	Admission Based On	: PG
9.	Name of the Supervisor	: Dr. S. Furthous Fatima
10.	Name of the Co-Supervisor	: NIL
11.	Mode	: PART TIME INTERNAL
12.	Research Centre	: SADAKATHULLAH APPA COLLEGE , PALAYAMKOTTAI
13.	Date of Commencement	: 05.07.2018
14.	Proposed Title	: RECENT TRENDS IN LABELING OF GRAPHS
15.	Doctoral Committee Members Details	: 1. DR S SYED ALI FATHIMA ASSISTANT PROFESSOR OF MATHEMATICS, SADAKATHULLAH APPA COLLEGE, TIRUNELVELI 2. DR M ANITHA ASSISTANT PROFESSOR, MATHEMATICS, RANI ANNA GOVERNEMENT COLLEGE FOR WOMEN, TIRUNELVELI

ASSISTANT SUPERINDENT ASSISTANT REGISTRAR DIRECTOR

MANONMANIAM SUNDARANAR UNIVERSITY

CENTRE FOR RESEARCH

ABISHEKAPATTI, TIRUNELVELI – 627 012, TAMILNADU, INDIA

DR. K. SENTHAMARAI KANNAN
DIRECTOR

REF : MSU/RES/R1/JUNE2017 Date : August 10, 2017

Ph.D., Programme Commencement Order

To

SULTHAN AHTHAR H M
143 A 20th street, Rahmath nagar, Tirunelveli, 143 A 20th street, Rahmath nagar, Tirunelveli
143 A 20th street, Rahmath nagar, Tirunelveli
Tamil Nadu, Thirunelveli, Pincode - 627011
Mobile No. : 9629526932, Email ID : sulthanahthar92@gmail.com

Sir/Madam,

Sub: Registration for doing Ph.D., programme - Date of Commencement of Research work - Intimation - Reg

Ref: Counseling attended by the candidate.

* * * * * * * * * * * * * * * * *

With reference to the above, you are provisionally registered for Ph.D., Programme as detailed below :

1.	Name of the Scholar	: SULTHAN AHTHAR H M
2.	Registration No.	: 17211072091014
3.	Discipline	: Mathematics
4.	Gender	: Male
5.	Social Category (Community)	: BC
6.	Nationality	: INDIAN
7.	PWD Status	: Not Applicable
8.	Admission Based On	: M.Phil
9.	Name of the Supervisor	: S Syed Ali Fathima
10.	Name of the Co-Supervisor	: K Alli
11.	Mode	: FULL TIME
12.	Research Centre	: The M.D.T. Hindu College, Tirunelveli
13.	Date of Commencement	: 10.08.2017
14.	Proposed Title	: A STUDY OF DOMINATION THEORY IN SPORTS SCHEDULING
15.	Doctoral Commmittee Members Details	: 1. DR K MURUGAN ASST PROF OF MATHS, ST HINDU COLLEGE. TIRUNELVELI. Mobile No. : 9486615671, Email ID : muruganmdt@gmail.com 2. DR R PONRAJ ASST PROF OF MATHS, SRI PARAMAKALYANI COLLEGE, ALWARKURCHI. Mobile No. : 8012719657, Email ID : ponrajmaths@gmail.com

ASST SUPDT AR DIRECTOR

MANONMANIAM SUNDARANAR UNIVERSITY

CENTRE FOR RESEARCH

ABISHEKAPATTI, TIRUNELVELI – 627 012, TAMILNADU, INDIA

DR. K. SENTHAMARAI KANNAN
DIRECTOR

REF : MSU/RES/R1/JANUARY2018 Date : January 10, 2018

Ph.D., Programme Commencement Order

To

JERSEENA
188 aysha manzil, Darling nagar
palayamkottai
Tamil Nadu, Thirunelveli, Pincode - 627011
Mobile No. : 7299793300, Email ID : jerseena.riyaz@gmail.com

Sir/Madam,

Sub: Registration for doing Ph.D., programme - Date of Commencement of Research work - Intimation - Reg

Ref: Counseling attended by the candidate.

****

With reference to the above, you are provisionally registered for Ph.D., Programme as detailed below :

1.	Name of the Scholar	: JERSEENA
2.	Registration No.	: 18121072092019
3.	Discipline	: Mathematics
4.	Gender	: Female
5.	Social Category (Community)	: BCM
6.	Nationality	: INDIAN
7.	PWD Status	: Not Applicable
8.	Admission Based On	: M.Phil
9.	Name of the Supervisor	: Dr. S. Syed Ali Fathima
10.	Name of the Co-Supervisor	: Dr. K. Alli
11.	Mode	: PART TIME INTERNAL
12.	Research Centre	: The M.D.T. Hindu College, Tirunelveli
13.	Date of Commencement	: 10.01.2018
14.	Proposed Title	: A Study on Generalized sets and functions in various branchs of topology
15.	Doctoral Commmittee Members Details	: 1. DR M HIMAYA JALEELA BEGUM assistant professor,department of mathematics,sadakathullah appa college,tirunelveli Mobile No. : 9787611867, Email ID : himaya2013@gmail.com 2. DR M ANITHA assistant professor,department of mathematics,rani anna government college for women,tirunelveli Mobile No. : 9943845052, Email ID : m.anirajan77@yahoo.co.in

10/1/18 ASST

10/1/18 SUPDT

10/1/18 AR

10/01/18 DIRECTOR

MANONMANIAM SUNDARANAR UNIVERSITY
Accredited with 'B' Grade by NAAC
ABISHEKAPATTI, TIRUNELVELI – 627 012, TAMILNADU, INDIA
Centre for Research

Dr.K.SENTHAMARAI KANNAN
DIRECTOR

REF:MSU/RES/R1/JULY 2018 Date : 05-July-2018

Ph.D.,Programme Commencement Order

To

RAMA G
237,SALIYAR STREET
TIRUNELVELI TOWN
Thirunelveli Tamil Nadu 627006
Mobile No :9659927838 ,Email Id :anumageshwaran@gmail.com

Sir/Madam,

Sub: Registration for doing Ph.D., programme - Date of Commencement of Research work - Intimation-Reg

Ref: Counseling attended by the candidate.

* * * * * * * * * * * * * * * * * *

With reference to the above, you are provisionally registered for Ph.D., Programme as detailed below :

1.	Name of the Scholar	: RAMA G
2.	Registration No	: 18221192092015
3.	Discipline	: Mathematics
4.	Gender	: Female
5.	Social Category (Community)	: BC
6.	Nationality	: INDIAN
7.	PWD Status	: Not Applicable
8.	Admission Based On	: M.Phil
9.	Name of the Supervisor	: DR.M HIMAYA JALEELA BEGUM
10.	Name of the Co-Supervisor	: NIL
11.	Mode	: PART TIME EXTERNAL
12.	Research Centre	: SADAKATHULLAH APPA COLLEGE , PALAYAMKOTTAI
13.	Date of Commencement	: 05.07.2018
14.	Proposed Title	: A MULTIHESITANT FUZZY LINGUISTIC MULTI CRITERIA DECISION - MAKING WAY FOR LOGISTICS OUTSOURCING WITH PARTIAL WEIGHT DETAILS
15.	Doctoral Committee Members Details	: 1. DR.S.Syed Ali Fathima ASSISTANT PROFESSOR, SADAKATHULLAH APPA COLLEGE, TIRUNELVELI 2. DR.M.Anitha ASSISTANT PROFESSOR, RANI ANNA GOVERNMENT COLLEGE FOR WOMEN

ASSISTANT SUPERINDENT ASSISTANT REGISTRAR DIRECTOR

MANONMANIAM SUNDARANAR UNIVERSITY
Reaccredited with 'A' Grade by NAAC (3rd Cycle)
CENTRE FOR RESEARCH
ABISHEKAPATTI, TIRUNELVELI – 627 012, TAMILNADU, INDIA
Phone : 0462 - 2333741, 9487907000, Intercom: 2563073, Mail: cfrmsu@msuniv.ac.in, web: msuniv.ac.in

DR. K. SENTHAMARAI KANNAN
DIRECTOR

REF : MSU/RES/Admn/Jan 2019 **Date : December 25, 2018**

Ph.D. Programme Commencement Order

To
RADHA R
Plot no 8 and 9 South car street, Venkateshwara nagar2, Krishnapuram
Maharajanagar post
Tamil Nadu, Thirunelveli, Pincode - 627011
Mobile No. : 9894271940, Email ID : rajagopalrajagopal099@gmail.com

Sir/Madam,

Sub: Registration for doing Ph.D., programme - Date of Commencement of Research work - Intimation - Reg
Ref: Counseling attended by the candidate for January 2019 session.

****

With reference to the above, you are provisionally registered for Ph.D., Programme as detailed below :

Name of the Scholar	RADHA R
Registration No.	**19111192092008**
Discipline	Mathematics
Gender / Community	Female / OC
Nationality	Indian
PWD Status	Not Applicable
Admission Based On / Mode	M.Phil / FULL TIME
Research Centre	Sadakathullah Appa College, Tirunelveli.
Name of the Supervisor	**DR. N. MOHAMED RILWAN, Department of Mathematics, Sadakathullah Appa College, Palayamkottai, Tirunelveli** **Mobile No. : 7867946099, Email ID : rilwan2020@gmail.com**
Name of the Co-Supervisor	**NIL**
Doctoral Commmittee Members	1. **DR S SYED ALI FATHIMA, ASSISTANT PROFESSOR, DEPARTMENT OF MATHEMATICS, SADAKATHULA APPA COLLEGE, TIRUNELVELI** **Mobile No. : 9965337934, Email ID : syedalifathima2014@gmail.com**
	2. **DR K SELVAKUMAR, ASSISTANT PROFESSOR, DEPARTMENT OF MATHEMATICS, MANONMANIAM SUNDARANAR UNIVERSITY, TIRUNELVELI** **Mobile No. : 9442448593, Email ID : kaselvamsu@msuniv.ac.in, selva_158@yahoo.co.in**
Proposed Title	A study on innovations in Cayley graphs
Date of Commencement	25.12.2018

ASSISTANT SUPERINTENDENT ASSISTANT REGISTRAR DIRECTOR

Copy To : Supervisor, Co-Supervisor (if applicable) / Research Centre / Doctoral Committee Members

MANONMANIAM SUNDARANAR UNIVERSITY
Accredited with 'B' Grade by NAAC
ABISHEKAPATTI, TIRUNELVELI – 627 012, TAMILNADU, INDIA
Centre for Research

Dr.K.SENTHAMARAI KANNAN
DIRECTOR

REF:MSU/RES/R1/JULY 2018 Date : 05-July-2018

Ph.D.,Programme Commencement Order

To

A DURGASELVI
20 / 1B, Geerthi Nagar,J. K. Hospital Opposite Street
Reddiyarpatti
Thirunelveli Tamil Nadu 627007
Mobile No :9790529896 ,Email Id :durgamuthu9526@gmail.com

Sir/Madam,

Sub: Registration for doing Ph.D., programme - Date of Commencement of Research work - Intimation-Reg

Ref: Counseling attended by the candidate.

* * * * * * * * * * * * * * * * * *

With reference to the above, you are provisionally registered for Ph.D., Programme as detailed below :

1.	Name of the Scholar	: A DURGASELVI
2.	Registration No	: 18211192092007
3.	Discipline	: Mathematics
4.	Gender	: Female
5.	Social Category (Community)	: BC
6.	Nationality	: INDIAN
7.	PWD Status	: Not Applicable
8.	Admission Based On	: PG
9.	Name of the Supervisor	: Dr. S. Furthous Fatima
10.	Name of the Co-Supervisor	: NIL
11.	Mode	: FULL TIME
12.	Research Centre	: SADAKATHULLAH APPA COLLEGE , PALAYAMKOTTAI
13.	Date of Commencement	: 05.07.2018
14.	Proposed Title	: A SURVEY ON TOPOLOGICAL SPACES
15.	Doctoral Committee Members Details	: 1. DR S SYED ALI FATHIMA ASSISTANT PROFESSOR OF MATHEMATICS, SADAKATHULLAH APPA COLLEGE, TIRUNELVELI 2. DR M P SYED ALI NISAYA ASSISTANT PROFESSOR OF MATHEMATICS, THE MDT HINDU COLLEGE, TIRUNELVELI

ASSISTANT SUPERINDENT ASSISTANT REGISTRAR DIRECTOR

MANONMANIAM SUNDARANAR UNIVERSITY
Accredited with 'B' Grade by NAAC
ABISHEKAPATTI, TIRUNELVELI – 627 012, TAMILNADU, INDIA
Centre for Research

Dr.K.SENTHAMARAI KANNAN
DIRECTOR

REF:MSU/RES/R1/JULY 2018 Date : 05-July-2018

Ph.D.,Programme Commencement Order

To

ISSAI ARASI A
PLOT NO 157, SRINIVASA NAGAR,V M CHATRAM
MAHARAJA NAGAR POST
Thirunelveli Tamil Nadu 627011
Mobile No :9489621963 ,Email Id :mathiarasi157@gmail.com

Sir/Madam,

Sub: Registration for doing Ph.D., programme - Date of Commencement of Research work - Intimation-Reg

Ref: Counseling attended by the candidate.

* * * * * * * * * * * * * * * * * *

With reference to the above, you are provisionally registered for Ph.D., Programme as detailed below :

1.	Name of the Scholar	: ISSAI ARASI A
2.	Registration No	: 18211192092004
3.	Discipline	: Mathematics
4.	Gender	: Female
5.	Social Category (Community)	: BC
6.	Nationality	: INDIAN
7.	PWD Status	: Not Applicable
8.	Admission Based On	: PG
9.	Name of the Supervisor	: DR M HIMAYA JALEELA BEGUM
10.	Name of the Co-Supervisor	: NIL
11.	Mode	: FULL TIME
12.	Research Centre	: SADAKATHULLAH APPA COLLEGE , PALAYAMKOTTAI
13.	Date of Commencement	: 05.07.2018
14.	Proposed Title	: A STUDY ON NEAR RINGS
15.	Doctoral Committee Members Details	: 1. DR S SYED ALI FATHIMA ASSISTANT PROFESSOR OF MATHEMATICS, SADAKATHULLAH APPA COLLEGE, TIRUNELVELI 2. DR K ALLI ASST PROF OF MATHS M D T HINDU COLLEGE TIRUNELVELI

ASSISTANT SUPERINDENT ASSISTANT REGISTRAR DIRECTOR

MANONMANIAM SUNDARANAR UNIVERSITY
Reaccredited with 'A' Grade by NAAC (3rd Cycle)
CENTRE FOR RESEARCH
ABISHEKAPATTI, TIRUNELVELI – 627 012, TAMILNADU, INDIA
Phone : 0462 - 2553747, 9487507020, Intercom: 2553073, Mail: crmsu@msuniv.ac.in, web: msuniv.ac.in

DR. K. SENTHAMARAI KANNAN
DIRECTOR

REF : MSU/RES/Admn/Jan 2019 Date : December 24, 2018

Ph.D., Programme Commencement Order

To
K JANOFER
16- 5, Ayyanar Kovil 5th street, K K Nagar, Madurai
Tamil Nadu, Madurai, Pincode - 625020
Mobile No. : 9865573498, Email ID : janofermath@gmail.com

Sir/Madam,

Sub: Registration for doing Ph.D., programme - Date of Commencement of Research work - Intimation - Reg

Ref: Counseling attended by the candidate for January 2019 session.

* * * * * * * * * * * * * * * * *

With reference to the above, you are provisionally registered for Ph.D., Programme as detailed below :

Name of the Scholar	K JANOFER
Registration No.	**19131192092019**
Discipline	Mathematics
Gender / Community	Female / BCM
Nationality	Indian
PWD Status	Not Applicable
Admission Based On / Mode	M.Phil / PART TIME EXTERNAL
Research Centre	Sadakathullah Appa College, Tirunelveli.
Name of the Supervisor	**DR S FIRTHOUS FATIMA, Department of Mathematics, Sadakathullah Appa College, Palayamkottai, Tirunelveli Mobile No. : 9095045047, Email ID : kitherali@yahoo.co.in**
Name of the Co-Supervisor	**NIL**
Doctoral Committee Members	**1. DR S SYED ALI FATHIMA, ASST. PROF. OF MATHEMATICS, SADAKATHULLAH APPA COLLEGE, TIRUNELVELI** **Mobile No. : 9965337934, Email ID : syedalifathima2014@gmail.com**
	2. DR K ALLI, ASST. PROF. OF MATHEMATICS, THE MDT HINDU COLLEGE, PETTAI **Mobile No. : 9487410618, Email ID : allimdt@gmail.com**
Proposed Title	A Study on Domination in Fuzzy Graphs and Other related parameters
Date of Commencement	24.12.2018

ASSISTANT SUPERINTENDENT ASSISTANT REGISTRAR DIRECTOR

Copy To : Supervisor, Co-Supervisor (if applicable) / Research Centre / Doctoral Committee Members

MANONMANIAM SUNDARANAR UNIVERSITY
Accredited with 'B' Grade by NAAC
ABISHEKAPATTI, TIRUNELVELI – 627 012, TAMILNADU, INDIA
Centre for Research

Dr.K.SENTHAMARAI KANNAN
DIRECTOR

REF:MSU/RES/R1/JULY 2018 Date : 05-July-2018

Ph.D.,Programme Commencement Order

To

SHANMUGAPRIYA U
AB 23 ARLINE POLICE QUARTERS,AB 23 ARLINE POLICE QUARTERS
AB 23 ARLINE POLICE QUARTERS
TIRUNELVELI Tamil Nadu 627011
Mobile No :8300041725 ,Email Id :priyahari18h@gmil.com

Sir/Madam,

Sub: Registration for doing Ph.D., programme - Date of Commencement of Research work - Intimation-Reg

Ref: Counseling attended by the candidate.

* * * * * * * * * * * * * * * * * *

With reference to the above, you are provisionally registered for Ph.D., Programme as detailed below :

1.	Name of the Scholar	: SHANMUGAPRIYA U
2.	Registration No	: 18211192092006
3.	Discipline	: Mathematics
4.	Gender	: Female
5.	Social Category (Community)	: DNC
6.	Nationality	: Indian
7.	PWD Status	: Not Applicable
8.	Admission Based On	: M.Phil
9.	Name of the Supervisor	: DR.M HIMAYA JALEELA BEGUM
10.	Name of the Co-Supervisor	: NIL
11.	Mode	: FULL TIME
12.	Research Centre	: SADAKATHULLAH APPA COLLEGE , PALAYAMKOTTAI
13.	Date of Commencement	: 05.07.2018
14.	Proposed Title	: A STUDY ON FUZZY LOGIC IN NEAR RINGS
15.	Doctoral Committee Members Details	: 1. DR.S.Syed Ali Fathima ASSISTANT PROFESSOR, SADAKATHULLAH APPA COLLEGE, TIRUNELVELI 2. DR.R.Alli ASSISTANT PROFESSOR, M.D.T.HINDU COLLEGE, TIRUNELVELI

ASSISTANT SUPERINDENT ASSISTANT REGISTRAR DIRECTOR

MANONMANIAM SUNDARANAR UNIVERSITY
Reaccredited with 'A' Grade by NAAC (3rd Cycle)
CENTRE FOR RESEARCH
ABISHEKAPATTI, TIRUNELVELI - 627 012, TAMILNADU, INDIA
Phone : 0462 - 2333741, 9487907020, Intercom: 2562071, Mail: drmsu@msuniv.ac.in, web: msuniv.ac.in

DR. K. SENTHAMARAI KANNAN
DIRECTOR

REF : MSU/RES/Admn/July 2019 Date : August 29, 2019

Ph.D., Programme Commencement Order

To
AYESHA PARVEEN P
13 F, Bangalow Street, Pettai
Thirunelveli, Tamil Nadu, Pincode - 627004
Mobile No. : 9486506212, Email ID : aabidaaasima@gmail.com

Sir/Madam,

Sub: Registration for doing Ph.D., programme - Date of Commencement of Research work - Intimation - Reg

Ref: Counseling attended by the candidate for July 2019 session.

* * * * * * * * * * * * * * * * *

With reference to the above, you are provisionally registered for Ph.D., Programme as detailed below :

Name of the Scholar	AYESHA PARVEEN P
Registration No.	**19211192092014**
Discipline	Mathematics
Gender / Community	Female / BCM
Nationality	Indian
PWD Status	Not Applicable
Admission Based On / Mode	M.Phil / FULL TIME
Research Centre	Sadakathullah Appa College, Tirunelveli.
Name of the Supervisor with Address	Dr. M. Himaya Jaleela Begum, Department of Mathematics, Sadakathullah Appa College (Autonomous), Palayamkottai, Tirunelveli, 627011 Mobile No. : 9787611867, Email ID : himaya2013@gmail.com
Name of the Co-Supervisor with Address	Nil.
Doctoral Committee Members	1. DR S FIRTHOUS FATIMA, Assistant Professor, Department of Mathematics, Sadakathullah Appa College, Tirunelveli - 627011 Mobile No. : 8098045047, Email ID : kitherali@yahoo.co.in
	2. DR K SELVAKUMAR, Associate Professor, Department of Mathematics, Manonmaniam Sundaranar University, tirunelveli - 627 012 Mobile No. : 9442448593, Email ID : selva_158@yahoo.co.in
Proposed Title	A Study on Ideals in Various Algebras
Date of Commencement	29.08.2019

ASSISTANT SUPERINTENDENT ASSISTANT REGISTRAR DIRECTOR

Copy To : Supervisor, Co-Supervisor (if applicable) / Research Centre / Doctoral Committee Members

MANONMANIAM SUNDARANAR UNIVERSITY
Reaccredited with 'A' Grade by NAAC (3rd Cycle)
ABISHEKAPATTI, TIRUNELVELI – 627 012, TAMILNADU, INDIA
Centre for Research

Dr.K.SENTHAMARAI KANNAN
DIRECTOR

REF:MSU/RES/Admn/Jan 2019

Date : December 20, 2018

To

Ph.D.,Programme Commencement Order

M DHIVYA
6-226,KAMARAJAR STREET
M K P NAGAR PALAYAMKOTTAI
Thirunelveli Tamil Nadu 627002
Mobile No :9952219040 ,Email Id :mdhivyakanaga13@gmail.com

Sir/Madam,

Sub: Registration for doing Ph.D., programme - Date of Commencement of Research work - Intimation-Reg

Ref: Counseling attended by the candidate.

* * * * * * * * * * * * * * * * *

With reference to the above, you are provisionally registered for Ph.D., Programme as detailed below :

1.	Name of the Scholar	: M DHIVYA
2.	Registration No	: 19111192092022
3.	Discipline	: Mathematics
4.	Gender	: Female
5.	Social Category (Community)	: BC
6.	Nationality	: INDIAN
7.	PWD Status	: Not Applicable
8.	Admission Based On	: M.Phil
9.	Name of the Supervisor	: Dr. S. Firthous Fatima
10.	Name of the Co-Supervisor	: NIL
11.	Mode	: FULL TIME
12.	Research Centre	: SADAKATHULLAH APPA COLLEGE , PALAYAMKOTTAI
13.	Date of Commencement	: 20.12.2018
14.	Proposed Title	: A SURVEY ON LABELING GRAPHS
15	Doctoral Committee Members Details	: 1. DR. M. Himaya Jaleela Begum, ASSISTANT PROFESSOR, DEPARTMENT OF MATHEMATICS, SADAKATHULLAH APPA COLLEGE, TIRUNELVELI.
		2. DR.M.P SYED ALI NISAYA ASSISTANT PROFESSOR, DEPARTMENT OF MATHEMATICS, THE MDT HINDU COLLEGE, TIRUNELVELI

ASSISTANT SUPERINDENT ASSISTANT REGISTRAR DIRECTOR

மனோன்மணியம் சுந்தரனார் பல்கலைக்கழகம்
MANONMANIAM SUNDARANAR UNIVERSITY
CENTRE FOR RESEARCH
(A State University, Re-Accredited with 'A' Grade by NAAC)
Abishekapatti Tirunelveli – 627 012, Tamil Nadu, India

Dr. C. KANNAN
Director – Centre for Research

Ref. MSU/RES/Ph.D./R1/2021 22.06.2021

Change of Guide

Mrs. A. Priscilla Paul, Reg.No.18131282092016.
Plot No.144, Officer's Town, 5th Street, Anaiyur, Madurai – 625 107.
Mobile : 99444107339.

Sir / madam,

Sub.: Mrs. A. Priscilla Paul, Reg.No.18131282092016 – Change of Research Supervisor – Intimation – Reg.

Ref.: 1. Your letter received on 29.09.2020.
2. Vice Chancellor's order dated 19.01.2021.

****

With reference to the above, I am by direction to inform that you are permitted to change the Supervisor from **Dr. A. Lourdusamy**, Associate Professor, Department of Mathematics, St. Xavier's College (Autonomous), Palayamkottai to **Dr.S. Syed Ali Fathima**, Assistant Professor, Department of Mathematics, Sadakathullah Appa College (Autonomous), Rahmath Nager, Tirunelveli, for your Ph.D. Programme under the discipline of Mathematics with the following conditions:

* Any fellowship of award for the previous research shall be ceased w.e.f. the change of guide.
* As per the UGC norms, the change of guide will not be entertained further.

DIRECTOR

Copy to : 1. **Dr. S. Syed Ali Fathima,** : **New Guide**
Assistant Professor of Mathematics,
Sadakathullah Appa College (Autonomous),
Rahmath Nagar, Palayamkottai – 627 011.

2. **Dr. A. Lourdusamy,** : **Existing Guide**
Associate Professor of Mathematics,
St. Xavier's College (Auonomous),
Palayamkottai – 627 002.

மனோன்மணியம் சுந்தரனார் பல்கலைக்கழகம்
MANONMANIAM SUNDARANAR UNIVERSITY
CENTRE FOR RESEARCH
(A State University, Re-Accredited with 'A' Grade by NAAC)
Abishekapatti Tirunelveli – 627 012, Tamil Nadu, India

Dr. C. KANNAN
Director

Ref. MSU/RES/Ph.D./R1/2021. 23.06.2021

Change of Research Centre

Change of Research Centre from **ST. XAVIER'S COLLEGE (AUTONOMOUS), PALAYAMKOTTAI** to **SADAKATHULLAH APPA COLLEGE (AUTONOMOUS), PALAYAMKOTTAI** has been granted to Mr./Ms. **PRISCILLA PAUL . A,** Reg. No.**18131282092016.**

Director

Copy to :

1. **Dr. S. Syed Ali Fathima ,** : **Guide**
   Assistant Professor of Mathematics,
   Sadakathullah Appa College (Autonomous),
   Palayamkottai – 627 011.

2. **Mrs. A. Priscilla Paul,** : **Name of the Scholar & Address**
   Plot No.144,, Officer's Town,
   5th Street,
   Anaiyur,
   Madurai – 625 017.
   Mobile : **9944107339.**

MANONMANIAM SUNDARANAR UNIVERSITY

Reaccredited with 'A' Grade by NAAC (3rd Cycle)

CENTRE FOR RESEARCH

ABISHEKAPATTI, TIRUNELVELI – 627 012, TAMILNADU, INDIA

Phone : 0462 - 2333741, 9487907000, Intercom: 2563073, Mail. cfrmsu@msuniv.ac.in, web: msuniv.ac.in

DR. C. KANNAN
DIRECTOR

REF : MSU/RES/Admn/July 2020 Session

Date : December 30, 2020

Ph.D., Programme Commencement Order

To

S JEYAMANGALA ABIRAMI
606A,23rd Street,, ShanthiNagar,Palayamkottai
Thirunelveli, Tamil Nadu, Pincode - 627002
Mobile No. : 8903407365, Email ID : jeys.abs14@gmail.com

Sir/Madam,

Sub: Registration for doing Ph.D., programme - Date of Commencement of Research work - Intimation - reg.

Ref: Counselling attended by the candidate for July 2020 session.

****

With reference to the above, you are provisionally registered for Ph.D., Programme as detailed below :

Name of the Scholar	S JEYAMANGALA ABIRAMI
Registration No.	**20211192092008**
Discipline	Mathematics
Gender & Community	Female & BC
Nationality	Indian
PWD Status	Not Applicable
Admission Based On & Mode	M.Phil & FULL TIME
Research Centre	Sadakathullah Appa College (Autonomous), Tirunelveli
Name of the Supervisor with Address	**Dr.S. Angelin Kavitha Raj, Assistant Professor** **Department of Mathematics, Sadakathullah Appa College, Tirunelveli, 627011** **Mobile No. : 7339401117, Email ID : angelinkavitha.s@gmail.com**
Name of the Co-Supervisor with Address	**NIL**
Doctoral Commmittee Members	**1. DR S SYED ALI FATHIMA, Assistant Professor, Department of Mathematics, Sadakathullah Appa College (Autonomous), Tirunelveli – 627011** **Mobile No. : 9965337934, Email ID : syedalifathima2014@gmail.com**
	2. DR J SUBHASHINI, Assistant Professor, Department of Mathematics, St.John's College, Palayamkottai - 627002 **Mobile No. : 9442884565, Email ID : shinijps@gmail.com**
Proposed Title	A STUDY ON STRONG CONVEX DOMINATION POLYNOMIALS OF SOME GRAPH
Date of Commencement	30.12.2020

ASSISTANT SUPERINTENDENT ASSISTANT REGISTRAR DIRECTOR

Copy To : Supervisor, Co-Supervisor (if applicable) / Research Centre / Doctoral Committee Members

MANONMANIAM SUNDARANAR UNIVERSITY

Reaccredited with 'A' Grade by NAAC (3rd Cycle)

CENTRE FOR RESEARCH

ABISHEKAPATTI, TIRUNELVELI – 627 012, TAMILNADU, INDIA

Phone : 0462 - 2333741, 9487907000, Intercom: 2563073, Mail. cfrmsu@msuniv.ac.in, web: msuniv.ac.in

DR. C. KANNAN
DIRECTOR

REF : MSU/RES/Admn/July 2020 Session

Date : December 30, 2020

Ph.D., Programme Commencement Order

To

JACHIN SAMUEL S
13 LUTHER STREET, MURUGANKURICHI, PALAYAMKOTTAI
Thirunelveli, Tamil Nadu, Pincode - 627002
Mobile No. : 9489164864, Email ID : jachinsamuel@gmail.com

Sir/Madam,

Sub: Registration for doing Ph.D., programme - Date of Commencement of Research work - Intimation - reg.

Ref: Counselling attended by the candidate for July 2020 session.

****

With reference to the above, you are provisionally registered for Ph.D., Programme as detailed below :

Name of the Scholar	JACHIN SAMUEL S
Registration No.	**20211192091006**
Discipline	Mathematics
Gender & Community	Male & BC
Nationality	INDIAN
PWD Status	Not Applicable
Admission Based On & Mode	PG & FULL TIME
Research Centre	Sadakathullah Appa College (Autonomous), Tirunelveli
Name of the Supervisor with Address	**Dr.S. Angelin Kavitha Raj, Assistant Professor** **Department of Mathematics, Sadakathullah Appa College, Tirunelveli, 627011** **Mobile No. : 7339401117, Email ID : angelinkavitha.s@gmail.com**
Name of the Co-Supervisor with Address	**NIL**
Doctoral Commmittee Members	**1. DR S SYED ALI FATHIMA, Associate Professor, Department of Mathematics, sadakathullah Appa College,Rahmath Nagar - 627011** **Mobile No. : 9965337934, Email ID : syedalifathima2014@gmail.com**
	2. DR M DEVA SARAJA, Associate Professor, Department of Mathematics, Rani Anna Government.College for women,Thirunelveli - 627008 **Mobile No. : 7598231255, Email ID : mdsaroja@gmail.com**
Proposed Title	A STUDY ON GEODETIC CONNECTED DOMINATION POLYNOMIAL OF SOME GRAPH
Date of Commencement	30.12.2020

ASSISTANT SUPERINTENDENT ASSISTANT REGISTRAR DIRECTOR

Copy To : Supervisor, Co-Supervisor (if applicable) / Research Centre / Doctoral Committee Members

MANONMANIAM SUNDARANAR UNIVERSITY

Reaccredited with 'A' Grade by NAAC (3rd Cycle)

CENTRE FOR RESEARCH

ABISHEKAPATTI, TIRUNELVELI – 627 012, TAMILNADU, INDIA

Phone : 0462 - 2333741, 9487907000, Intercom: 2563073, Mail: cfrmsu@msuniv.ac.in, web: msuniv.ac.in

DR. C. KANNAN
DIRECTOR

REF : MSU/RES/Admn/July 2020 Session

Date : December 30, 2020

Ph.D., Programme Commencement Order

To

SUBER BATHUSHA S N
83, MAILAKATHAR STREET, , MELAPALAYAM, TIRUNELVELI
Thirunelveli, Tamil Nadu, Pincode - 627005
Mobile No. : 8124765150, Email ID : mohamed.suber.96@gmail.com

Sir/Madam,

Sub: Registration for doing Ph.D., programme - Date of Commencement of Research work - Intimation - reg.

Ref: Counselling attended by the candidate for July 2020 session.

****

With reference to the above, you are provisionally registered for Ph.D., Programme as detailed below :

Name of the Scholar	SUBER BATHUSHA S N
Registration No.	**20211192091007**
Discipline	Mathematics
Gender & Community	Male & BCM
Nationality	INDIAN
PWD Status	Not Applicable
Admission Based On & Mode	PG & FULL TIME
Research Centre	Sadakathullah Appa College (Autonomous), Tirunelveli
Name of the Supervisor with Address	**Dr.S. Angelin Kavitha Raj, Assistant Professor** **Department of Mathematics, Sadakathullah Appa College, Tirunelveli, 627011** **Mobile No. : 7339401117, Email ID : angelinkavitha.s@gmail.com**
Name of the Co-Supervisor with Address	**NIL**
Doctoral Commmittee Members	**1. DR N MOHAMED RILWAN, Assistant Professor, Department of Mathematics, sadakathullah Appa College,Rahmath Nagar - 627011** **Mobile No. : 7867946099, Email ID : rilwan2020@gmail.com**
	2. DR J SUBHASHINI, Assistant Professor, Department of Mathematics, St. Jhon's College,Palayamkottai-627002, **Mobile No. : 9442884565, Email ID : shinijps@gmail.com**
Proposed Title	A STUDY ON DOMINATION POLYNOMIALS OF SOME FUZZY GRAPHS
Date of Commencement	30.12.2020

ASSISTANT SUPERINTENDENT ASSISTANT REGISTRAR DIRECTOR

Copy To : Supervisor, Co-Supervisor (if applicable) / Research Centre / Doctoral Committee Members

(original in College office)

To Research Head Dept of Maths

கல்லூரிக் கல்வித் துறை

அனுப்புநர்
கல்லூரிக் கல்வி இயக்ககம்
கல்லூரி சாலை,
சென்னை - 600006

பெறுநர்
The Principal,
SADAKATHULLAH APPA COLLEGE,
RAHMATH NAGAR,
TIRUNELVELI - 627011

ந.க.எண். 48500 /எல்/ 2018 நாள் : 25.09.2019

அய்யா/அம்மையீர்,

பொருள் : கல்லூரிக் கல்வித் துறை - சென்னை - 06, முனைவர்பட்ட ஆராய்ச்சி படிப்பிற்கான மாநில அரசின் உதவித்தொகை வழங்குதல் - 2018ஆம் ஆண்டிற்கு தெரிவுசெய்யப்பட்ட மாணாக்கர்கள் விவரம் அனுப்புதல் - அவர்கள் வேறு நலத்துறை மூலம் உதவித்தொகை பெற்றிருப்பின் அதன் விவரம் கோருதல் - குறித்து

பார்வை : 18-09-2019 அன்று தெரிவுக்குழு உறுப்பினர்களால் தெரிவுசெய்யப்பட்ட பட்டியல்.

****

தங்கள் கல்லூரியில் 2018ஆம் ஆண்டில் முழு நேர ஆராய்ச்சி படிப்பில் சேர்ந்து மாநில அரசால் வழங்கப்படும் உதவித்தொகை வேண்டி விண்ணப்பித்த மாணாக்கர்களில் கீழ்காணும் மாணாக்கர்கள் உதவித்தொகை பெறுவதற்கு பார்வையில் காணும் தெரிவுக்குழு உறுப்பினர்களால் தெரிவு செய்யப்பட்டு உள்ளனர்.

S.NO	Name of the candidate	Name of the College	Subject	Course
1	AYSHA APROSE.M	SADAKATHULLAH APPA COLLEGE, RAHMATH NAGAR, TIRUNELVELI - 627011	MATHS	Ph.D

மேற்காணும் மானவர்கள் சார்பாக உரிய கல்லூரி முதல்வர்கள் கீழ்காணும் சான்றுகளை **30-09-2019** தேதிக்குள் அனுப்புமாறு கேட்டுக் கொள்கிறோம்.

1. 2018ஆம் ஆண்டு நலத்துறையால் வழங்கப்படும் எந்த வித நலதொகையும் அம் மானவர் விண்ணப்பிக்கவோ/பெறப்படவில்லை என்பதற்கான சான்று.

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கல்லூரிக் கல்வித் துறை

அனுப்புநர்
கல்லூரிக் கல்வி் இயக்ககம்
கல்லூரி சாலை
சென்னை - 600 006.

பெறுநர்
முதல்வர்,
SADAKATHULLAH APPA COLLEGE,
RAHMATH NAGAR,
TIRUNELVELI - 627011

ந.க.எண். 48500 /எல்/ 2018   நாள் : 25.11.2019

அய்யா/அம்மையீர்,

பொருள் : கல்லூரிக் கல்வித் துறை - சென்னை-06, முனைவர்பட்ட ஆராய்ச்சி படிப்பிற்கான மாநில அரசின் உதவித்தொகை வழங்குதல் - 2018ஆம் ஆண்டிற்கு தெரிவுசெய்யப்பட்ட மாணாக்கர்கள் விவரம் அனுப்புதல் - அவர்கள் வேறு நலத்துறை மூலம் உதவித்தொகை பெற்றிருப்பின் அதன் விவரம் கோருதல் - குறித்து

பார்வை : 18-09-2019 அன்று தெரிவுக்குழு உறுப்பினர்களால் தெரிவுசெய்யப்பட்ட பட்டியல்.

****

தங்கள் கல்லூரியில் 2018ஆம் ஆண்டில் முழு நேர ஆராய்ச்சி படிப்பில் சேர்ந்து மாநில அரசால் வழங்கப்படும் உதவித்தொகை வேண்டி விண்ணப்பித்த மாணாக்கர்களில் கீழ்காணும் மாணாக்கர்கள் உதவித்தொகை பெறுவதற்கு பார்வையில் காணும் தெரிவுக்குழு உறுப்பினர்களால் தெரிவு செய்யப்பட்டு உள்ளனர்.

வ. எண்	ஆராய்ச்சி பயிலும் மாணவரின் பெயர்	பாடம்	கல்லூரியின் பெயர்
1	DURGASELVI.A	MATHS	SADAKATHULLAH APPA COLLEGE, RAHMATH NAGAR, TIRUNELVELI - 627011

To
Dr. Syed Ali Fathima
HoD
Research centre (Maths)
2/12/19
167

DEPARTMENT OF COLLEGIATE EDUCATION

From
Dr.(Tmt) C.V.Deepaa
M.Sc.,M.Phil.,Ph.D.
Joint Director of Collegiate Education(F)
Directorate of Collegiate Education,
Chennai - 600 006.
Tamil Nadu State.

To
THE PRINCIPAL,
38.SADAKATHULLAH APPA COLLEGE (AUTONOMOUS), RAHMATH NAGAR, TIRUNELVELI-627 011

Rc.No. 44500/L/2019 Dated .04.2021

Sir / Madam,

Sub : Department of Collegiate Education – Stipend to Research Scholars (full time) payment to the scholars sanctioned during 2019 batch. for First year forwarding of **NEFT** – Regarding.

Ref : Director's Proceedings Rc.No.44500/L/2019 Dated : 11-03-2021.

I am to state that as per the details given below, Ph.D Scholarship amount has been transferred to your bank account through **NEFT** on 22-04-2021. I request you to disburse the same as per the guidelines provided with this letter. I request you to acknowledge receipt of this letter immediately.

I also request you to inform immediately in case the amount has not been received in your bank account with relevant documents so as to verify and re-send the same.

38. SADAKATHULLAH APPA COLLEGE (AUTONOMOUS), RAHMATH NAGAR, TIRUNELVELI-627 011				
S.NO	Name of the candidate	Subject	RANKNO	AMOUNT
1	AYESHA PARVEEN P	MATHS	5	Rs.60000/-

2	IRFANA AMRIN M	PHYSICS	6	Rs.60000/-
3	AASHIKATHULZUBERIYA J	COMPUTER SCIENCE	11	Rs.60000/-
4	NAGOOR MEERAL M	COMPUTER SCIENCE	32	Rs.60000/-
5	CHITRA DEVI M	ZOOLOGY	89	Rs.60000/-

1.The receipt of the **NEFT** should be acknowledged immediately.

2. Before the payment of stipend, the Principals are requested to obtain the undertaking in the enclosed proforma from the scholar duly recommended by the Guide and Countersigned by the Principal and to forward the same to the Director immediately.

3. The Principals are requested to disburse the amount after getting a certificate from the Guide, that, the scholar is still pursuing his / her research. The Principal and the Guide is fully responsible for the lapse, if any, found in the later date.

4.The stamped receipt should be obtained from the scholar concerned in the prescribed form (form enclosed) and sent to this office immediately quoting the sanction order number and rank number of the scholar without fail.

5.The undisbursed amount if any, be returned to this office by a DD drawn in favour of Branch Manager, SBI Treasury Branch, Chennai at once.

Joint Director of Collegiate Education (F)

20/4

Enclosure :

1. **Stamped Receipt form.**
2. **Undertaking and Confidential Report form / Assessment of the scholar form.**