

**SANT GAHIRA GURU UNIVERSITY AMBIKAPUR**



**GOVT. RAM BHAJAN RAI N.E.S. P.G. COLLEGE  
JASHPUR NAGAR (C.G.)**

2021-22

Department of Mathematics  
M.Sc. (IV-semester)

**DISSERTATION**  
**Topic - TRIGONOMETRY**

**Guided by-**  
Mr. Ajay Rajwade  
Mr. Ashish Behra

**Submitted by-**  
Sama Baraik  
Roll No. - 11872  
Entollement No.- SUS16R6965

**SANT GAHIRA GURU UNIVERSITY**  
**AMBIKAPUR SARGUJA (C.G)**



A

**DESSERTATION**

**“ASSIGNMENT PROBLEM”**

**Submitted to the department of mathematics in partial fulfillment  
of the requirements for the degree of**

**MASTER'S OF SCIENCE IN  
MATHEMATICS**

**SESSION: 2021-22**

**SUPERVISED BY:-**

**DR.K.K.PRASAD**  
**HEAD OF DEPARTMENT**  
**(MATHEMATICS)**

**SUBMITTED BY:-**

**REENA KUMARI NAGESH**  
**ENROLL. NO-SUS17R5436**  
**ROLL NO-11871**



**GOVT. R.B.R.N.E.S.P.G. COLLEGE JASHPUR (C.G.)**



**SANT GAHIRA GURU UNIVERSITY, AMBIKAPUR(C.G.)**

**SESSION:- 2021—22**

**DEPARTMENT OF MATHEMATICS**

**M.SC - 4th SEM**

**DISSERTATION**

**TOPIC :- SENSITIVITY ANALYSIS**

**GUIDED BY**

**MR. AJAY RAJWADE**

**MR.ASHISH BERA**

**( DEPT. OF MATHS )**

**SUBMITTED BY**

**PARAMANAND RAM MANJHI**

**ROLL NO. -11870**

**M.Sc. MATHS 4TH SEM.**

A  
DISSERTATION  
ON  
A STUDY OF OPERATION RESEARCH TECHNIQUE  
IN  
M.SC. MATHEMATICS  
AT  
GOVT.R.B.R.N.E.S.P.G.COLLEGE JASHPUR NAGAR  
SANT GAHIRA GURU VISHWAVIDYALAYA SARGUJA ( C.G. )



SESSION :- 2021-2022

HEAD OF DEPARTMENT

GUIDED BY

SUBMITTED BY

Dr.K.K.PRASAD  
ASSITANT PROFESSOR

MR. AJAY RAJWADE  
MR. ASHISH BERA  
( GUEST LECTURERS )

PANKAJ GUPTA  
MSC IV SEMESTER

**SANT GAHIRA GURU UNIVERSITY**  
**AMBIKAPUR SARGUJA (C.G.)**



**A**

**DESSERTATION**

**ENTITLED**

**“MATRIX”**

Submitted to the department of mathematics in partial fulfillment of  
the requirements for the degree of

**Master's Of Science In Mathematics**

**Session: 2021-22**

Supervised by:-

**DR.K.K.PRASAD**  
**HEAD OF DEPARTMENT**  
**(MATHEMATICS)**

Submitted by:-

**NECKLACE XALXO**  
**ENROLL. NO-SUS17R7977**  
**ROLL NO-11868**



SANT GAHIRA GURU VISHWAVIDYALAYA SARGUJA AMBIKAPUR



**“DEPARTMENT OF MATHEMATICS”**  
**“GOVT. R.B.R.N.E.S.P.G. COLLEGE JASHPUR”**  
**“SESSION: 2021-2022”**  
**“DISSERTATION”**

NAME :- MEGHA GUPTA

CLASS :- M.SC (4<sup>TH</sup> SEMESTER)

ENROLL. NO. :- SUS17R5390

TOPIC :- GROUP THEORY

**GUIDED BY :**

AJAY RAJWADE

ASHISH BERA

**SUBMITTED BY:-**

MEGHA GUPTA

ROLL NO. -11867

**SANT GAHIRA GURU UNIVERSITY AMBIKAPUR**



**GOVT. RAM BHAJAN RAI N.E.S. P.G. COLLEGE  
JASHPUR NAGAR (C.G.)**

**2021-22**

**Department of Mathematics  
M.Sc. (IV-semester)**

**DISSERTATION  
Topic - BOOLEAN ALGEBRA**

**Guided by-**  
**Mr. Ajay Rajwade**  
**Mr. Ashish Behra**

**Submitted by-**  
**Karishma Singh**  
**Roll No. - 11866**

**Entollement No.- SUS17R5374**

**SANT GAHIRA GURU UNIVERSITY SARGUJA AMBIKAPUR (C.G.)**



**GOVT. RAM BHAJAN RAI N.E.S. P.G. COLLEGE  
JASHPUR NAGAR (C.G.)**

**2021-2022**

**Department of Mathematics  
M.Sc. (IV- semester)**

**DISSERTATION  
Topic - GAME THEORY**

**Guided By**

Mr. Ajay Rajwade

Mr. Ashish Behra

**Submitted By**

Jaikleen Toppo

Roll No. – 11865

Enrolment No.- SUS17R5365



**SANT GAHIRA GURU UNIVERSITY**

**AMBIKAPUR SARGUJA (C.G.)**



A

DESSERTATION

ENTITLED

**“SET THEORY”**

Submitted to the department of mathematics in partial fulfillment  
OF THE REQUIREMENTS FOR THE  
DEGREE OF

MASTER'S OF SCIENCE IN  
MATHEMATICS

SESSION: 2021-22

**SUPERVISED BY:-**

DR.K.K.PRASAD  
HEAD OF DEPARTMENT  
(MATHEMATICS)

**SUBMITTED BY:-**

GOUTAM SONI  
ENROLL. NO-SUS17R6297  
ROLL NO-11864

**SANT GAHIRA GURU UNIVERSITY**

**AMBIKAPUR SARGUJA (C.G)**



A DESSERTATION

**ENTITLED**

“STUDY OF FIXED POINT  
THEOREM IN CONE METRIC SPACE”

Submitted to the department of mathematics in partial fulfillment  
of the requirements for the degree of

**Master's of science in Mathematics**

Session: 2021-22

*Supervised by:-*

DR.K.K.PRASAD  
HEAD OF DEPARTMENT  
(MATHEMATICS)

*Submitted by:-*

CHAKRESH KUMAR  
ENROLLMENT NO-SUS17R5085  
ROLL NO-11863



**SANT BAHIRA GURU UNIVERSITY AMBIKAPUR (C.G.)**



**GOVT. R.B.R.N.E.S.P.G.COLLEGE  
JASHPUR NAGAR (C.G.)**

**SESSION : 2021-2022**

**DEPARTMENT OF MATHMATICS**

**"DISSERTATION"**

**TOPIC :- GRAPH THEORY**

**GUIDED BY**

**MR. AJAY RAJWADE  
MR. ASHIS BERA**

**SUBMITTED BY**

**ARTI SHARMA  
ROLL NO. - 11862**

**(M.SC. MATHS. -IV<sup>TH</sup> SEM.)**



**SANT GAHIRA GURU VISHWAVIDYALAYA SARGUJA AMBIKAPUR**



**GOVT. R.B.R.N.E.S.P.G. COLLEGE JASHPUR  
NAGAR (C.G.)**

**SESSION :- 2021-2022**

**DEPARTMENT OF MATHEMATICS**

**DISSERTATION**

**TOPIC :- RING THEORY**

**GUIDED BY-**

**MR. AJAY RAJWADE**

**MR. ASHISH BERA**

**SUBMITTED BY-**

**AARTI BHAGAT**

**M.Sc. IV<sup>TH</sup> SEMESTER  
(MATHEMATICS)**

**ROLL NO. 11861**

**ENROLL.NO. SUS17R5291**

SANT GAHIRA GURU UNIVERSITY  
AMBIKAPUR SARGUJA (C.G)



A DESSERTATION

**ENTITLED**

“SOME CONTRIBUTIONS TO THE  
PROBLEMS IN OPERATION RESEARCH”

Submitted to the department of mathematics in partial fulfillment  
of the requirements for the degree of

**Master's of science in Mathematics**

Session: 2021-22

*Supervised by:-*

DR.K.K.PRASAD  
HEAD OF DEPARTMENT  
(MATHEMATICS)

*Submitted by:-*

TIRATH RAM  
ENROLLMENT NO-SUS17R6147  
ROLL NO-11874

**SANT GAHIRA GURU UNIVERSITY AMBIKAPUR**



**GOVT. RAM BHAJAN RAI N.E.S. P.G. COLLEGE  
JASHPUR NAGAR (C.G.)**

2021-22

Department of Mathematics  
M.Sc. (IV-semester)

**DISSERTATION**  
**Topic - TRANSPORTATION PROBLEM**

**Guided by-**  
Mr. Ajay Rajwade  
Mr. Ashish Behra

**Submitted by-**  
Shweta Baraik  
Roll No. - 11873  
Entollement No.- SUS16R6966



A  
DISSERTATION  
ON  
A STUDY OF OPERATION RESEARCH TECHNIQUE  
IN  
M.SC. MATHEMATICS  
AT  
GOVT.R.B.R.N.E.S.P.G.COLLEGE JASHPUR NAGAR  
SANT GAHIRA GURU VISHWAVIDYALAYA SARGUJA ( C.G. )



SESSION : - 2021-2022

HEAD OF DEPARTMENT

GUIDED BY

SUBMITTED BY

Dr.K.K.PRASAD  
ASSITANT PROFESSOR

MR. AJAY RAJWADE  
MR. ASHISH BERA  
( GUEST LECTURERS )

PANKAJ GUPTA  
MSC IV SEMESTER

**MASTER OF SCIENCE (MATHAMATICS)**

**Fourth Semester**  
**Operations Research Techniques**

**DISSERTATION OUTCOME**

1. Identify and develop operations research model describing a real-life problem.
2. Understand the mathematical tools that are needed to solve various optimization Problem.
3. Solve various linear programming, transportation, assignment, queuing, inventory and game problems related to real life.

**Section - I**

Operations Research: Origin, Definition and scope.

Linear Programming: Formulation and solution of linear programming problems by graphical and simplex methods, Big - M and two-phase methods, Degeneracy, Duality in linear programming.

**Section - II**

Transportation Problems: Basic feasible solutions, Optimum solution by stepping stone and modified distribution methods, Unbalanced and degenerate problems, Transshipment problem. Assignment problems: Hungarian method, Unbalanced problem, Case of maximization, Travelling salesman and crew assignment problems.

**Section - III**

Game Theory: Two-person zero sum game, Game with saddle points, the rule of dominance; Algebraic, Graphical and linear programming methods for solving mixed strategy games.

**REFERENCE BOOKS :**

1. H.A. Taha, Operation Research-An introduction, Printice Hall of India.
2. P.K. Gupta and D.S. Hira, Operations Research, S. Chand & Co.
3. S.D. Sharma, Operation Research, Kedar Nath Ram Nath Publications.
4. J.K. Sharma, Mathematical Model in Operation Research, Tata McGraw Hill.

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