BS (Computer Science) 4 Year Degree Course

SEMESTER I

Mathematical Foundation of Computer Science

UNIT-I: FUNDAMENTALS

Sets and Operations of Sets, Types of Relations and Functions. Fundamentals of Logic, Propositions, Tautologies, Logical inferences, First order logic and simple problems.

UNIT-II: ELEMENTARY COMBINATORICS

Combinations and Permutations, Enumerations of Combinations and Permutations with repetitions and Enumerating Permutations with constrained repetitions,

UNIT-III: GRAPHS

Basics concepts, Isomorphisms and Subgraphs, Trees , Spanning trees, Binary trees , Planer graphs.

UNIT-IV: BOOLEAN ALGEBRA

Introduction to Boolean Algebras and Boolean functions, Switching Mechanisms, Minimization of Boolean functions.

TEXT BOOKS:

1. Discrete Mathematics for Computer Scientists and Mathematicians by **J.L.MOTT, A. CANDEL & T. P BAKER (PHI)**

REFERENCE BOOKS:

1. Discrete Mathematics by **TREMBELY AND MANOHAR (TMH**)
2. Elements of Discrete Mathematics by **C. L. LIU** (TMH)

B. Sc. MATHEMATICS

SEMESTER - III

Core Subject: OPEN   ELEVTIVE   Title: General /Basic Mathematics

No. of Teaching Hours: 60   No. of Credits: 4   Max. Marks: 100

Unit – I

L.C.M and H.C.F of numbers, Ratio and proportion, Percentages.

Unit – II

Profit and loss, Time, distance and work problems.

Unit – III

Sets, Relations and functions, Statements, implication converse and inverse.

Unit – IV

Frequency distributions, Mean, Median, Mode, Standard Deviations.

Reference Books:

Quantitative Aptitude for Competitive Exam - R. S. Aggarwal

Quantitative Aptitude Quantum - Sarvesh Sharma

B. C. A -SEMESTER- I

DISCRETE MATHEMATICS

UNIT-I

FUNDAMENTALS

Sets, relations and function , problem solving strategies, Fundamentals of Logic. Logicinferences, First order logic, Quantifier propositions.

UNIT-II

ELEMENTARY COMBINATORICS

Combinations and permutations, Enumerations with repetitions with constrained repetitions,principle of inclusion exclusion

UNIT-IIIGRAPHS

Basics concepts, isomorphism, Trees , spanning trees, Binary trees , Planer graphs, EulerCircuits.

UNIT-IV

BOOLEAN ALGEBRA

Introduction to Boolean Algebraic functions, switching Mechanism, Minimization ofBoolean functions.

TEXT BOOKS:

1. Discrete Mathematics for Computer Scientists and Mathematicians by **J.L.MOTT, A.CANDEL & T. P BAKER (PHI)**

REFERENCE BOOKS:

Discrete Mathematics by **TREMBELY AND MANOHAR (TMH**)

Elements of Discrete Mathematics by **C. L. LIU** (TMH)

B. C. A-II-SEMESTER

PROBABILITY AND STATISTICS

UNIT-I

PROBABILITY

Introduction to probability, Mutually Exclusive and Independent Events, Dependent Events ,Addition theorem and multiplication theorem(statements only).

UNIT-II

DISCRETE PROBABILITY DISTRUBUTIONS

Random   variables p.m.f and p.d.f.   Binominal Distribution, Binominal probabilities.

UNIT-III

THE NORMAL DISTRIBUTION

Introduction   to the Normal Distribution, Applications of Normal Distribution, the Normal Approximation to the Binominal Distribution.

UNIT-IV

TESTING OF HYPOTHESIS

Hypothesis tests for Means,   Hypothesis tests for Means using small samples, student t-test Hypothesis tests for Proportions,   Difference of Proportions.

TEXT BOOK:

Contemporary Statistics – A Computer Approach by S.P GORDON AND F.S. GORDON(Mc Graw Hill 1994)

REFERENCE BOOKS

Fundamentals of Mathematical Statistics by S. C. GUPTA and V. K. KAPOOR StatisticalMethods by S. P. GUPTA

MATHEMATICS-I

(CALCULUS AND LINEAR ALGEBRA)

COURSE CODE	BSC103	
Category	BASIC SCIENCE COURSE	
Course Title	MATHEMATICS-I	
Scheme and Credits	L T P C 3 1 0 4	SEMESTER-1

UNIT-I: Matrix Theory

Definition of a matrix, Rank of a matrix, Consistency of the system of linear equations, Eigen values and Eigen vectors of a matrix; Cayley-Hamilton theorem (without proof) simple problems.

UNIT-II: Differential Calculus

Limit, continuity and derivative(definitions only); Rolle's theorem(statement only) , Mean value theorems(without proofs) simple problems , Taylor's theorem and Maclaurin's expansions (statements only) simple problems, partial differentiation(two variables) .

UNIT-III: First Order Ordinary Differential Equations

Differential equation, linear and Bernoulli's equations, exact and non-exact equations (I.F= $\frac{1}{Mx+Ny}, \frac{1}{Mx-Ny}, e^{\int f(x)dx}, e^{\int g(y)dy}$).

UNIT-IV: Higher Order Differential Equations

Higher order linear differential equations with constant coefficients with complimentary functions and particular integrals, homogeneous linear Differential Equations (Cauchy's equation), Method of variation of parameters.

Text Book/reference books:

1.B.S.Grewal, Higer Order Engineering Mathematics, Khanna Publications

2.Erwin Kreyszig, Advanced Engineering Mathematics, John Wiley and Sons

3.R.K.Jain and S.r.k.iyenger, Advanced Engineering Mathematics

Mathematics-II

(CALCULUS-II)

COURSE CODE	BSC104
Category	BASIC SCIENCE COURSE
Course Title	MATHEMATICS-II
Scheme and Credits	L T P C 3 1 0 4

UNIT-I

Integral Calculus: Definition of improper integrals- Beta and Gamma integrals-simple problems ; Double Integral.

UNIT-II

Vector Calculus: Scalar and vector fields; vector differentiation, directional derivative ,gradient of a scalar field; divergence and curl of a vector field, Line and Surface integrals;

UNIT-III

Fourier series: Expansion of a function as Fourier series for a given range- Fourier series of even and odd functions- Half range cosine and sine series expansions.

UNIT-IV

LAPLACE TRANSFORMS: Laplace transforms-Properties of Laplace transforms ,multiplication by t, division by t, Laplace transforms of derivatives, Laplace transforms of unit step function, -inverse Laplace transforms –properties, inverse Laplace transform of multiplication by s and division by s ,applications of Laplace transforms .

Text Book/reference books:

1.B.S.Grewal, Higer Order Engineering Mathematics, Khanna Publications

2.Erwin Kreyszig, Advanced Engineering Mathematics, John Wiley and Sons

3.R.K.Jain and S.r.k.Iyenger, Advanced Engineering Mathematics

MATHEMATICS-III

NUMERICAL TECHNIQUES

COURSE CODE	BSC	
Category	BASIC SCIENCE COURSE	
Course Title	MATHEMATICS-III	
Scheme and Credits	L T P C 3 1 0 4	SEMESTER-III

UNIT-1

Solution Of Ordinary Differential Equations-Picard's Method, Taylor's Method, Euler's Method

UNIT-II

Solution of Algebraic and Transcendental Equations, Bisection method, Regular falsi method, Newton-Raphson method, Iteration method

UNIT-III

 Finite Differences, Forward Differences, Backward Differences,

Newton's forward and backward Interpolation Formulae, Numerical Differentiation.(forward and backward derivatives)

UNIT-IV;

Numerical Integration-Trapezoidal Rule, Simpson's one –third Rule, Simpson's three-eight Rule.

Text Book/reference books:

1. B. S. Grewal, *"Higher Engineering Mathematics"*, Khanna Publications
2. Erwin Kreyszig, *"Advanced Engineering Mathematics"*, Eighth Edition, John Wiley and Sons

3. R. K. Jain and S. R. K. Iyengar, *"Advanced Engineering Mathematics"*, Fifth Edition, Narosa Publishing House

B. Tech.   SEMESTER-III

DISCRETE MATHEMATICS

No. Of credits: 4   **Max. Marks: 100**

No. Of Hours: 60

UNIT-I: FUNDAMENTALS

Sets, relations and functions, problem solving strategies, Fundamentals of Logic, Logic inferences, first order logic, Mathematical induction

UNIT-II: ELEMENTARY COMBINATORICS

Combinations and permutations, Enumerations with repetitions with constrained repetitions, principle of inclusion-exclusion

UIT-III: GRAPHS

Basic concepts, isomorphism, Trees , spanning trees, Binary trees , Planer graphs, Euler Circuits, Chromatic numbers

UNIT-IV: BOOLEAN ALGEBRA

Introduction to Boolean Algebraic functions, switching Mechanism, Minimization of Boolean functions, Applications to Boolean, scale diagrams

TEXT BOOKS:

1. Discrete Mathematics for Computer Scientists and Mathematicians by **J.L.MOTT, A.CANDEL & T. P BAKER (PHI)**

REFERENCE BOOKS:

1. Discrete Mathematics by **TREMBELY AND MANOHAR (TMH**)
2. Elements of Discrete Mathematics by **C. L. LIU** (TMH)

MCA - I Year I Semester
DISCRETE MATHEMATICS

U N I T – I: FUNDAMENTALS

Sets, Relations and functions, Fundamentals of logic, Logical inferences, First order logic, Mathematical induction. Combinations and Permutations, Enumeration - with repetitions, with constrained repetitions, The Principle of Inclusion –Exclusion for 2 sets.(Chapter1-2)

U N I T –II: RECURRENCE RELATIONS

Generating functions, Coefficients of Generating functions, Recurrence Relations, Homogeneous and non-homogeneous Recurrence Relations.(Chapter-3)

U N I T –III: RELATIONS AND DIAGRAMS

Relations and diagrams, Binary relations, Equivalence relations, Ordering relations, Paths and Closures, Directed graphs, Adjacency matrices- Applications.(Chapter - 4)

U N I T –IV: GRAPHS

Graphs, Isomorphism, Trees, Spanning trees, Binary trees, Planar graphs, Eler Circuits, Hamitonian graphs, Chromatic numbers. (Chapter5)

TEXTBOOK:

1 Discrete Mathematics for Computer Scientists, (Chapter1-5) by JL MOTT, KANDEL ANDT P BAKER

REFERENCE BOOKS:

1. Discrete Mathematical Structure- (Tmh) By Trembley And Manohar
2. Discrete Mathematics With Algorithms-(JohnWiley) By M.O.Albertson And J.P.Hutchinson
3. Elements Of Discrete Mathematics-(Tmh, Second Edition)By C.L.Liu
4. DiscreteMathematics - (Phi, Third Edition) By BurnordKolman
5. Discrete Mathematics By KhRossen (Tmh)
6. Discrete Mathematics By S Lipschutz AndM.Lipson Schaum's Gen (Tmh)

Core Subject: OPEN   ELEVTIVE   Title: General /Basic
Mathematics

No. of Teaching Hours: 60   No. of Credits: 4   Max. Marks:
100

Unit – I

L.C.M and H.C.F of numbers, Ratio and proportion, Percentages.

Unit – II

Profit and loss, Time, distance and work problems.

Unit – III

Sets, Relations and functions, Statements, implication converse and inverse.

Unit – IV

Frequency distributions, Mean, Median, Mode, Standard Deviations.

Reference Books:

Quantitative Aptitude for Competitive Exam - R. S. Aggarwal

Quantitative Aptitude Quantum - Sarvesh Sharma

OPERATIONS RESEARCH

UNIT-I

LINEAR PROGRAMMING PROBLEM

Definition of LPP , formulation of linear programming problems solving by Graphical method, simplex method, Big-M method, two phase simplex method.

UNIT-II

TRANSPORTATION PROBLEM

Transportation problem matrix form, feasible solution to TP, IBFS by north west corner, matrix minimum method, Vogels approximation methods, OBFS by MODI method.

UNIT-III

ASSIGNMENT PROBLEM

Concepts of assignment problem, its matrix form, obtaining optimum solution using Hungarians algorithm, Unbalanced AP, travelling sales man problem.

UNIT-IV

SEQUENCING PROBLEM

Concept of sequencing problem, determination of optimum sequence of n jobs on two or three machines without passing, calculation of idle times of machines .

TEXTBOOKS:

1. Operation research- S.D. Sharma

REFERENCES:

1. Operation research- Kanti swaroop, P.K. Gupta, Manmohan.

2. Problems in Operation research- S.P.Gupta.

OPERATIONS RESEARCH

UNIT-I

LINEAR PROGRAMMING PROBLEM

Definition of LPP , formulation of linear programming problems solving by Graphical method, simplex method, Big-M method.

UNIT-II

TRANSPORTATION PROBLEM

Transportation problem matrix form, feasible solution to TP, IBFS by north west corner, matrix minimum method, Vogels approximation methods, OBFS by Modi method.

UNIT-III

ASSIGNMENT PROBLEM

Concepts of assignment problem, its matrix form, obtaining optimum solution using Hungarians algorithm, Unbalanced AP, travelling sales man problem.

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OPERATIONS RESEARCH

UNIT-I

LINEAR PROGRAMMING PROBLEM

Definition of LPP , formulation of linear programming problems solving by Graphical method, simplex method, Big-M method.

UNIT-II

TRANSPORTATION PROBLEM

Transportation problem matrix form, feasible solution to TP, IBFS by north west corner, matrix minimum method, Vogels approximation methods, OBFS by Modi method.

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ASSIGNMENT PROBLEM

Concepts of assignment problem, its matrix form, obtaining optimum solution using Hungarians algorithm, Unbalanced AP, travelling sales man problem.

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TEXTBOOKS:

1. Operation research- S.D.Sharma

REFERENCES:

1. Operation research- Kanti swaroop, P.K.Gupta, Manmohan.

2. Problems in Operation research- S.P.Gupta.

Lecture Based Modules for Bridge Course in Mathematics
(B. Tech (I year) I Semester)

Chapter 1: Matrices and Determinants

Definition of matrix, Types of Matrices, Operations on Matrices, Determinants.

Chapter 2: Set Theory, Relations and Functions

Set Theory-Definition and Representation of sets, Types of Sets, Operation on Sets.
Relations- Definition, Types of Relations, Partial order and Equivalence Relations .
Functions-Definition and classification Types of functions, Composition and Inverse of functions.

Chapter 3: Limits, continuity and differentiation:

Preliminary concepts: intervals, neighborhood of a point, function, limit point of a set. Limit of a function, standard formulae of limits, Continuity of a function and discontinuous function; Problems on limits and continuity, Differentiability of function, Problems on Product rule.

Chapter 4: Differential Equations:

Definition of Differential equation; order and Degree of differential equation; Formation of differential equations of first order.

Prescribed Text book:

Erwin Kreyszig, Advanced Engineering Mathematics, John Wiley and Sons

Reference books:

1.B.S.Grewal, Higer Order Engineering Mathematics, Khanna Publications

2.R.K.Jain and S.r.k.Iyenger, Advanced Engineering Mathematics

3. Discrete Mathematics for Under graduates, Ane Books,2014

4. Textbook of Ordinary Differential Equations, Second Edition, Tata McGrawHill Education Pvt.Ltd Sherbert, Intr. G.B. Thomas, M.D. Weir, J.R. Hass, Thomas' Calculus, Pearson Publication.

5. Differential calculus by Shanti narayan

<h2 align="center">Lecture Based Modules for Bridge Course in Mathematics</h2>
<h3 align="center">(B. Tech (I year) II Semester)</h3>

Chapter 1: Trigonometry

Introduction of trigonometric ratios and relation between them; compound, multiple and sub-multiple angles.

Chapter 2: Integration

Introduction indefinite integral, standard integral, two basic rules of integration
Methods of integration: integration by substitution, integration by parts.
Definite integral, area under a curve.

Chapter 3: Vector differentiation

Differential operators, Gradient, Divergence & curl, vector identities, related problems.

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Chapter 4: Vector Integration:

Definition of Line integral ,surface integrals& volume integrals and related problems.

Prescribed Text book:

Erwin Kreyszig, Advanced Engineering Mathematics, John Wiley and Sons

Reference books:

1.Plane Trigonometry, by S.L. Loney Part 1

2.Modern Approach to Intermediate Trigonometry, by Das Gupta and Prasad

3. B.S.Grewal, Higher Order Engineering Mathematics, Khanna Publications

4. G.B. Thomas, M.D. Weir, J.R. Hass, Thomas' Calculus, Pearson Publication.

5. Differential calculus by Shanti narayan

B.PHARM-IV-YEAR

BIOSTATISITCS AND RESEARCH METHODOLOGY (Theory)

45 Hours

Scope: To understand the applications of Biostatistics in Pharmacy. This subject deals with descriptive statistics, Correlation, Regression, Probability theory, Parametric tests Non Parametric tests, ANOVA, Introduction to Design of Experiments, Phases of Clinical trials , Observational and Experimental studies**.**

Objectives: Upon completion of the course the student shall be able to
- Know the DoE (Design ofExperiment)
- Know the various statistical techniques to solve statistical problems
- Appreciate statistical techniques in solving the problems**.**

Course content:

Unit-I   10 Hours

Introduction: Statistics, Biostatistics, Frequency distribution

Measures of central tendency: Mean, Median, Mode-Pharmaceutical examples **Measures of dispersion**: Dispersion, Range, standard deviation.

Correlation: Definition, Karl Pearson's coefficient of correlation.

Unit-II   10 Hours

Regression: regression lines,regression line of x on y and regression line of y on x and their problems

Unit-III

Probability: Definition of probability, Sample, Population, small sample,Null hypothesis, alternative hypothesis,sampling, Error-I type, Error-II type
Parametric test: t-test(Sample, Pooled or Unpaired and Paired) , ANOVA, (One way).

Non Parametric tests: Mann-Whitney U test, Run test.

Graphs: Histogram, ogive curves , **Designing the methodology:** Sample size determination .

Unit-V   **12Hours**

Design and Analysis of experiments:C.R.D,R.B.D

Recommended Books (Latest edition):

1. Pharmaceutical statistics- Practical and clinical applications, Sanford Bolton,publisher Marcel Dekker Inc. NewYork.
2. Fundamental of Statistics – Himalaya Publishing House- S.C.Guptha
3. Design and Analysis of Experiments –PHI   Learning Private Limited,R.Pannerselvam,
4. Design   and   Analysis of Experiments –Wiley Students Edition, Douglas and C. Montgomery

PHARM -D-IV -YEAR

BIOSTATISTICS AND RESEARCH METHODOLOGY (THEORY)

Theory: 2 Hrs. /Week

1. Detailed syllabus and lecture wise schedule

1 Research Methodology

a) Types of clinical study designs:

Case studies, observational studies, interventional studies,

b) Designing the methodology

2 Biostatistics

2.1 a) Introduction

b) Types of data distribution

c) Measures describing the central tendency distributions-mean, median, mode

d) Measurement of the spread of data-range, standard deviation, variance,

Coefficient of variation..

2.2 Construction of histogram, frequency   polygon

2.3 Basics of testing hypothesis

a) Null hypothesis, level of significance.

b) Level of significance -Students t test (paired and unpaired),

Analysis of Variance (one-way)

c) Level of significance (Non-parametric data)- Sign test, Wilcoxan's signed rank test, Run test

d) Linear regression and correlation- Introduction, Pearson's and Spearman's correlation and correlation co-efficient.

2.4 Statistical methods in epidemology

Incidence and prevalence, relative risk, attributable risk

3. Computer applications in pharmacy Computer System in Hospital Pharmacy : Patterns of Computer use in Hospital Pharmacy –

Patient record database management, Medication order entry – Drug labels and list – Intravenous solution , patient medication profiles, Inventory control, Management report & Statistics.

Computer In Community Pharmacy

Computerizing the Prescription Dispensing process

Use of Computers for Pharmaceutical Care in community pharmacy

Accounting and General ledger system.

Reference books:

a. Pharmaceutical statistics- practical and clinical applications, Sanford Bolton 3

rd edition, publisher Marcel Dekker Inc. NewYork.

b. Drug Information- A Guide for Pharmacists, Patrick M Malone, Karen L Kier, John E Stanovich , 3 rd edition, McGraw Hill Publications 2006

Department of Mathematics & Statistics
Pre Ph .D Mathematics
Syllabus contents and Scheme of Examination
For the candidates admitted from the academic Year 2023-2024

Paper	Paper Code	Title of Paper	Credits	Total
I	RPE	**Reseach and Publication Ethics**	2	50
II	General	**Research Methodology**	4	100
III	Special	**Fluid Mechanics/ Mathematical Modelling**	4	100
IV		**Analysis of Published research papers / Scientific literature**	2	50

Pre Ph .D in Statistics

Paper	Paper Code	Title of Paper	Credits	Total
I	RPE	Reseach and Publication Ethics	2	50
II	General	Research Methodology	4	100
III	Special	Operations Research	4	**100**
IV		Analysis of Published research papers / Scientific literature	2	**50**

Course structure:

The course comprises of six modules listed in table below .

Modules	Unit title	Teaching hours
Theory	**Reseach and Publication Ethics**	
RPE 01	Philosophy and Ethics	3
RPE 02	Scientific Conduct	5
RPE 03	Publication Ethics	7
Practice		
RPE 04	Open Access Publishing	4
RPE 05	Publication Misconduct	4
RPE 06	Databases and Research Metrics	7
	Total	30

RPE 01:PHILOSOPHY AND ETHICS (3 hrs)

1. introduction to philosophy: definition nature and scope, concept, branches

2. Ethics:definition,moral philosophy ,nature of moral judgments and reactions

RPE 02: SCIENTIFIC CONDUCT (5 hrs)

1. Ethics with respect to science and research

2. Intellectual honesty and research integrity

3. Scientific misconducts: Falsification, Fabrication ,and Plagiarism (FFP)

4. Redundant publications :duplicate and overlapping publications, salami slicing

5. Selective reporting and misrepresentation of data

RPE 03: PUBLICATION ETHICS (7 hrs)

1. Publication ethics: definition ,introduction and importance

2. Best practices/standards setting initiatives and guidelines: COPE ,WAME, etc,

3. Conflicts of interest

4.Publication misconduct :definition, concept, problems that lead to unethical behavior and vice versa, types

5. Violation of publication ethics , authorship and contributor ship

6. Identification of publication misconduct, complaints and appeals

7. Predatory publishers and journals

RPE 04 :OPEN ACCESS PUBLISHING (4 hrs)

1. Open access publications and in initiatives

2. SHERPA-RoMEO online resource to check publisher copyright and self – achieving policies

3. Software tool to identify predatory publications developed by SPPU

4. Journal finder/ journal suggestion tools viz.JANE Elsevier journal finder, Springer journal suggester etc.

RPE 05: PUBLICATION MISCONDUCT (4 Hrs)

- A. Group discussions (2 hrs)
  - i)   Subject specific ethical issues , FFP, authorship
  - ii)   Conflicts of interest
  - iii)   Complaints and appeals: examples and fraud from India and abroad

B: Software tools (2 hrs)

Use of plagiarism software like Turnitin, Urkund and other open source software tools.

RPE 06: DATABASES AND RESEARCH METRICS(7 hrs)

- A. Databases (4 hrs)
  - i)   Indexing databases
  - ii)   Citation databases : web of science, scopus, etc.
- B. Research Metrics(3 hrs)
  - i)   Impact factor of journal as per journal citation report, SNIP, SJR, IPP, cite score.
  - ii)   Metrics ;h-index, g-index, i10 index, almetrics

References:

Bird, A.(2006).philosophy of science .Routledge.

MacIntyre, Alasdair (1967) A short History of Ethics London.

p. chaddah, (2018)Ethics in competitive Research; Do not get scooped:do not get plagiarized,ISBN:978-9387480865

National Academy of sciences, National Academy of Engineering and institute of Medicine, (2009),on Being a Scientist :A Guide to Responsible Conduct in Research: Third Edition National Academies Press

Resnik, D.B.(2011).What is ethics in research & why is it important. National Institute of Environmental Health Sciences,1-10,Retrieved from https//www.niehs.nih.gov/research/resourses/bioethics/whatis/index.cfm

Bcall,j.(2012).predatory publishers are corrupting open access. Nature, 489(7415), 179-179.

https://doi.org/10.1038/4891179a

Indian National Science Academy (INSA),Ethics in Science Education ,Research and Governance(2019),ISBN:978-81-939482-1-7, http://www.insaindia rcs.in/pdf/Ethics _ Book.pdf

Pre-Ph.D. Paper-IV

Analysis of Published research papers / scientific literature

Hours per week: 02   Credits: 02

A research scholar should submit analysis of published research papers / scientific literature in the form of dissertation.

Blue print for Paper-I
(For Theory Examinations)

Course: Pre- Ph.D .

Duration: 2 Hours   Max Marks: 50

Section-A

Answer any FIVE questions. Each question carries Six Marks   (5 X 10= 50)

1. From I unit.

2. From I unit.

3. From II unit.

4. From II unit.

5. From III unit.

6. From III unit.

7. From IV unit.

8. From IV unit.

9. From I OR II units.

10. From III OR IV units.

Blue print for Paper-II &III
(For Theory Examinations)

Course: Pre- Ph.D.

Duration: 3 Hours   Max Marks: 70

Section-A

Answer any FIVE questions. Each question carries Six Marks   (6 X 5= 30)

1. From I unit.

2. From I unit.

3. From II unit.

4. From II unit.

5. From III unit.

6. From III unit.

7. From IV unit.

8. From IV unit.

9. From I OR II units.

10. From III OR IV units.

Section-B
Answer ALL questions. Each question carries Ten Marks   (4 X 10= 40)

1. A or B from Unit I
2. A or B from Unit II
3. A or B from Unit III
4. A or B from Unit IV

Ph.D. Thesis submitting the Panel of Evaluators

Within Telangana (Local)					
S.No.	Name	Designation	Address	E-mail	Mobile Number
1.	Dr. Anjanna Matta	Associate Professor	Department of Mathematics, Faculty of Science and Technology, ICFAI Foundation for Higher Education, Donthanapally, Shankarplli Road, Hyderabad-501203, India	anjireddyiith@ifheindia.org	9550160530
2.	Dr. R. Srinivasa Raju	Associate Professor	Department of Mathematics, School of Sciences, GITAM Deemed to be University, Hyderabad Campus, Telangana, India.	srivass999@gmail.com	9885263919
3.	Dr. TirupathiThumma	Associate Professor	Department of Mathematics and Computer Science, Vardhaman College of Engineering (Autonomous), Hyderabad	thirupathi.thumma@gmail.com	9966689877
Other than Telangana (Non-Local)					
4.	Prof. Srinath	Professor	Department of Mathematics, SV University, Tirupati, Andhra Pradesh, India.	profsreenadh@gmail.com	9490418165
5.	Prof. J.C. Umavathi	Professor	Department of Mathematics, Gulbarga University, Gulbarga-585106, Karnataka, India.	drumavathi@rediffmail.com	7795541516
6.	Dr. V.S. Patil	Associate Professor	Department of Mathematics, Government Engineering College, Karad, India.	vishme.p@gmail.com	9423937675

7.	Dr. P.V. Satyanarayana	Associate Professor	Department of Mathematics, VIT, Vellore, Tamil Nadu, India.	**pvsatya8@yahoo.co.in**	9789574488
8.	Dr. S.R. Mishra	Professor	Department of Mathematics, ITER, Siksha 'O' Anusandhan Deemed to be University, Bhubaneswar, Odisha 751030, India**.**	satyaranjan_mshr@yahoo.co.in	9937169245
9.	Dr. Shantaram Narayan Salunkhe	Associate Professor	Department of Mathematics, Rani LaxmibaiMahavidyalaya, Parola, Dist-Jalgoan, Pin-42511, Maharashtra, India.	saisns@rediffmail.com	9420348619