

B.Sc. CSM II
Semester-III
BCSMCC(C)-301: DATA STRUCTURE
(Common for B.Sc. Non Medical/ B.Sc. CSM/ B.A.)

Credits:4

External Examination:75

Internal Assessment:25

INSTRUCTIONS FOR THE PAPER SETTER

The question paper will consist of three Units I, II & III, Each Unit I, II will have four questions from the respective Units of the syllabus. Each will have 12 marks. Unit III will consist of one compulsory question having 9 Questions of short-answer type covering the entire syllabus uniformly. All the questions will carry 3 marks.

INSTRUCTIONS FOR THE CANDIDATES

Candidates are required to attempt five questions in all; selecting two question from each Unit I & II and the compulsory question of Unit III. All the questions will carry equal marks.

Objective: To understanding about writing algorithms and step by step approach in solving problems with the help of fundamental data structures. To understand the abstract data types stack, queue, deque, and list. To understand prefix, infix, and postfix expression formats

UNIT-I

Data Structure: Introduction to data structure and algorithm, complexity of an algorithm.

Algorithm analysis: Time space tradeoff algorithms and Big O notation, Complexity. **Arrays:** Introduction, one dimensional and multidimensional arrays, memory representation of arrays, operations on arrays, sparse arrays and sparse matrices and their implementation

Stacks: Introduction; Operation on stacks; Implementation of stacks Application of stacks: matching parenthesis, evaluation of arithmetic expressions, conversion from infix to postfix, recursion.

Queues: Introduction, operation on queues, circular queue, memory representation of queues, priority queues, application of queues.

UNIT-II

Linked List: Introduction to operation on linked list, circular linked list, doubly linked list, header linked list, implementation of linked list, application of linked lists.

Trees: Introduction to Trees, Binary Tree; Binary Search Tree, Introduction to Heaps

Graphs: Introduction Graph: Graph terminology, Memory Representation of Graphs in memory: Operations performed on graphs, Application of graphs.

Searching and Sorting: Linear search, Binary Search. Bubble Sort, Selection Sort, Insertion Sort, Merge Sort, Shell Sort, Radix Sort, Quicksort and Heapsort.

Text Books:1. Seymour Lipschutz, "Data Structures using C", McGraw-Hill, 2002.

References:1. A. Tanenbaum, Y. Langsam and A.J. Augenstein, "Data Structures Using C", Prentice Hall of India, 1990

2. Loomis, "Data and File Structures".
3. Seymour Lipschutz, "Theory and Problems of Data Structures", McGraw-Hill, 2002.

B.Sc. Non Medical II
Semester-III
BCSMCC(C)-301(A): SOFTWARE LAB BASED ON DATA STRUCTURE

Credits:2

External Marks:50

Objectives:

- i. To develop skills to design and analyze simple linear and non linear *data structures*. ii. To Strengthen the ability to identify and apply the suitable *data structure* for the given real world problem.
- iii. To understanding about writing algorithms and step by step approach in solving problems with the help of fundamental data structures

The setting and evaluation will be done by a board of examiners consisting of Head External Examiner and the teacher(s) involved with the teaching of this paper.

The practical paper will consist of four exercises and the candidates will be required to attempt any three exercises.

The breakup of marks for the University Examination will be as under:

Viva-voce:10

Exercises:20

Lab. Record:20

1. Implementation of Array
2. Implementation of Stacks, Queue
3. implementation of Linked list
4. Implementation of Single, Double and circular Linked List
5. Implement Sorting techniques.
6. Implement Searching Techniques
7. Implementation of Recursive function.
8. Creation and traversal of Binary Search Tree.

B.Sc. CSM-II
SEMESTER-III
BCSMCC(S)-302: STATISTICAL INFERENCE-I

L T P
4 0 2

Max. Marks: 75
External Examination 55
Internal Assessment 20
Minimum pass marks 35%

Instructions for the Paper setter/Candidates

The Question paper will consist of three Sections A, B and C. Sections A and B will have four questions from respective sections of the syllabus. Each will have 09 marks. The students are required to attempt two questions from each section. Section C will be compulsory have only one question which will consist of at-least ten short answer type parts covering the whole syllabus. This question carries 19 marks.

Use of scientific non-programmable calculator is allowed.

SECTION – A

Point estimation:- Estimators and estimates, criteria for good estimator- Unbiasedness, Consistency, Efficiency and Sufficiency. Neyman-Factorization theorem (only statement and examples)

Methods of estimations: Maximum Likelihood estimation and Methods of Moments (properties and examples).

Testing of Hypotheses: The concept of Statistical hypotheses, simple and composite hypotheses, null and alternative hypotheses, statistical test, critical region, level of significance, two types of errors, power and power function, Interval estimation and Interval estimate of the mean of Normal Distribution.

Neyman-Pearson theory of test construction, Neyman-Pearson Lemma (only statement and its applications).

SECTION – B

Probability distributions of t, Chi-square and F: Sampling distributions, derivation and inter-relationships. Distributions of the sample mean and variance of independent random observations from a Normal population (derivation of sample mean distribution only).

Exact tests and confidence intervals relating to the parameters of the Binomial and Poisson distributions.

Tests for the independence of two attributes, tests about the mean and variance of a univariate Normal distribution.

Fisher's Z-transformation of the sample correlation and its uses, Chi-square test for the goodness of fit, testing of independence of Attributes. Yate's Correction.

TEXT BOOKS

1. Goon, A.M., Gupta, M.K. and Dasgupta, B. : Fundamentals of Statistics, Vol. I, World Press Pvt. Ltd., 1 Aug. 2013.
2. Goon, A.M., Gupta, M.K. and Dasgupta, B. : An outline of Statistical Theory Vol-II, World Press Pvt. Ltd., 2008.
3. Gupta, S.C. and Kapoor, V.K. : Fundamental of Mathematical Statistics,

REFERENCE READINGS

1. Hogg, R.V. and Craig, A.T. (1978) : Introduction to Mathematical Statistics, 4th ed. Collier MacMillan Internations ed.

**B.Sc. C. S. M.-II
SEMESTER-III**

BCSMCC(S)-302 (A): PRACTICAL OF STATISTICAL INFERENCE-I

Credits: 2

Max. Marks: 25

External Marks: 25

Instructions for the paper setter and the candidates

The setting and evaluation will be done by a board of examiners consisting of Head, External examiner and the teacher(s) involved with the teaching of this paper.

The practical paper will consist of four exercises and the candidates will be required to attempt any three exercises. Use of scientific non-programmable calculator is allowed.

The break-up of marks for the University Examination will be as under:

Exercises: 15

Lab. Record: 04

Viva-voice: 06

Lab Course:

The examination will be based on the syllabus of the papers CSM-304(Statistical Inference)

LIST OF PRACTICALS:

- 1) Examples Based on
 - (a) Unbiasedness
 - (b) Consistency
 - (c) Sufficiency
 - (d) Maximum Likelihood Methods of Estimation
 - (e) Methods of Moments
 - (f) Application for constructing a test for a simple hypothesis.
- 2) Test of Significance- Application of following:
 - (a) Chi-square Test
 - (b) Students t-test
 - (c) F-test
 - (d) Z-transformation.
- 3) Test of Independence of Attributes- Contingency Table.

B.Sc. CSM-II
SEMESTER-III
BCSMCC(M)-303: REAL ANALYSIS
(Common for B.Sc. Non Medical/ B.Sc. CSM/ B.A.)

L T P
5 1 0

Max. Marks: 100
External Examination 75
Internal Assessment 25
Minimum pass marks 35%

INSTRUCTION FOR THE PAPER SETTER

The question paper will consist of three sections A, B & C. Each of section A, B will have four questions from the respective syllabus. Each will consist of twelve marks. Section C will have one compulsory question having nine parts of short-answer type covering the entire syllabus uniformly. Each will consist of three marks.

INSTRUCTION FOR THE CANDIDATES

Candidates are required to attempt five questions in all; selecting two questions from each section A & B. Section C is compulsory.

SECTION-A

Finite and infinite sets, examples of countable and uncountable sets. Real line, bounded sets, suprema and infima, completeness property of \mathbb{R} , Archimedean property of \mathbb{R} , intervals. Concept of cluster points and statement of Bolzano- Weierstrass theorem.

Real Sequence, Bounded sequence, Cauchy convergence criterion for sequences. Cauchy's theorem on limits, order preservation and squeeze theorem, monotone sequences and their convergence (monotone convergence theorem without proof).

SECTION-B

Infinite series. Cauchy convergence criterion for series, positive term series, geometric series, comparison test, convergence of p-series, Root test, Ratio test, alternating series, Leibnitz's test (Tests of Convergence without proof). Definition and examples of absolute and conditional convergence.

Sequences and series of functions, Pointwise and uniform convergence. Mn-test, Mtest, Statements of the results about uniform convergence and integrability and differentiability of functions, Power series and radius of convergence.

BOOKS RECOMMENDED

1. T. M. Apostol, *Calculus* (Vol. I), John Wiley and Sons (Asia) P. Ltd., 2002.
2. R.G. Bartle and D. R Sherbert, *Introduction to Real Analysis*, John Wiley and Sons (Asia) P. Ltd., 2000.
3. E. Fischer, *Intermediate Real Analysis*, Springer Verlag, 1983.
4. K.A. Ross, *Elementary Analysis- The Theory of Calculus Series-* Undergraduate Texts in Mathematics, Springer Verlag, 2003.

B.Sc. CSM II
Semester-III
BCSMSEC(C)-304: Web Designing
(Common for B.Sc. Non Medical/ B.Sc. CSM/ B.A.)

Credits:2

M. Marks:50

Objective:

1. Create a web page.
2. Validate a web page.
3. Publish a web page.

Introduction to Internet: WWW, HTTP, Web pages, Web Browsers, URL, Search Engines.

Introduction to HTML: HTML tags and attributes paired and unpaired tags, Text-formatting tags-bold, italic, underline, strike, superscript, subscript, font face, font size, font color. Marquee tag, Creating external and internal links, using images as links. Ordered and unordered lists: Lists, unordered Lists, Ordered Lists, Nested Lists, Image Tag and Its Attributes, Using Image as a Link, Image Maps.

Tables: Table creation in HTML, Width of the Table and cells, cells spanning multiple row and columns, coloring cells, column specification, presenting information in tables, table attributes.

Forms: Introduction, form elements, different control types with input Elements, button Elements, textarea Elements, drop down list, action attributes and method attributes.

Introduction to JavaScript: Script tag, declaring variables in JavaScript, operators in JavaScript, arithmetic operators, assignment operators, comparison operators, logical operators, conditional operators, Conditional statements, if statement, if-else statement, Introduction to Functions-Inbuilt and User defined functions, Events in JavaScript.

Practical Based on Paper Web Designing

- Implement HTML Tags, Formatting Tags.
- Implement Different types of List.
- Implement Tables.
- Implement Forms.
- Implement Java Script Functions.

Text Book:

1. Beginning HTML and CSS Rob Larsen, Wrox Publications.

References:

1. HTML AND CSS: Design and build websites by Jon Duckett, Wrox Publishers.
2. Learning Web Design: A Beginner's guide to HTML,CSS, Javascript and Web Graphics, by Jennifer Niederst Robbins.
3. Beginning Web Programming with HTML, XHTML, and CSS Jon Duckett

**B.Sc. CSM II
Semester-III**

BCSMSEC(S)-305: Probability Theory

L T P
2 0 0

Max. Marks: 50
External Examination 40
Internal Assessment 10
Minimum pass marks 35%

INSTRUCTION FOR THE PAPER SETTER

The question paper will consist of three sections A, B & C. Each of section A, B will have four questions from the respective syllabus. Each will consist of five marks. Section C will have one compulsory question having five parts of short-answer type covering the entire syllabus uniformly. Each will consist of two marks.

INSTRUCTION FOR THE CANDIDATES

Candidates are required to attempt five questions in all; selecting two questions from each section A & B. Section C is compulsory.

Use of scientific non-programmable calculator is allowed.

SECTION-A

Moment Inequalities: Cauchy-Schwarz and its extension, Cr - inequality, Holder, Minkowski, Basic- inequality, Jensen inequality (statement only), Liapounov inequality and its applications.

Probability Inequalities: Chebyshev and one sided and two sided Chebyshev.

SECTION-B

Law of Large Numbers: Weak Law of Large Numbers (Chebyshev's, Khinchin's). Kolmogorov SLLN (only statement).

Central Limit Theorems: De Moivre's-Laplace, Lindeberg-Levy, Liapounov and their applications (Only Statements).

TEXT BOOKS

1. Goon, A.M., Gupta, M.K.: An Outline of Statistical Theory. Vol. I, and Dasgupta, B. 2013, Ed. 3rd, World Press.
2. Gupta, S.C. and Kapoor, V.K.: Fundamental of Mathematical Statistics, Sultan Chand & Sons Educational Pub. New Delhi 2014.
3. Bhat, B.R.: Modern Probability theory: An Introductory Text Book 2014, 2nd ed. Wiley Eastern Ltd.
4. Rohatgi, V.K.: An introduction to Mathematical Statistics 2012, Wiley Eastern Ltd

B.Sc. CSM-II
SEMESTER-III
BCSMSEC(M)-306(A): LOGIC AND SETS
(Common for B.Sc. Non Medical/ B.Sc. CSM/ B.A.)

L T P
2 0 0

Max. Marks: 50
External Examination 40
Internal Assessment 10
Minimum pass marks 35%

INSTRUCTION FOR THE PAPER SETTER

The question paper will consist of three sections A, B & C. Each of section A, B will have four questions from the respective syllabus. Each will consist of five marks. Section C will have one compulsory question having five parts of short-answer type covering the entire syllabus uniformly. Each will consist of two marks.

INSTRUCTION FOR THE CANDIDATES

Candidates are required to attempt five questions in all; selecting two questions from each section A & B. Section C is compulsory.

SECTION-A

Introduction, propositions, truth table, negation, conjunction and disjunction. Implications, biconditional propositions, converse, contra positive and inverse propositions and precedence of logical operators. Propositional equivalence: Logical equivalences. Predicates and quantifiers: Introduction, Quantifiers, Binding variables and Negations.

SECTION-B

Sets, subsets, Set operations, the laws of set theory and Venn diagrams. Examples of finite and infinite sets. Finite sets and counting principle. Empty set, properties of empty set. Standard set operations. Classes of sets. Power set of a set. Difference and Symmetric difference of two sets. Set identities, Generalized union and intersections. Relation: Product set, Composition of relations, Types of relations, Partitions, Equivalence Relations with example of congruence modulo relation.

BOOK RECOMMENDED

1. R.P. Grimaldi, *Discrete Mathematics and Combinatorial Mathematics*, Pearson Education, 1998.
 2. P.R. Halmos, *Naive Set Theory*, Springer, 1974.
 3. E. Kamke, *Theory of Sets*, Dover Publishers, 1950.
-

B.Sc. CSM-II
SEMESTER-III
BCSMSEC(M)-306(B): ANALYTICAL GEOMETRY
(Common for B.Sc. Non Medical/ B.Sc. CSM/ B.A.)

L T P
2 0 0

Max. Marks: 50
External Examination 40
Internal Assessment 10
Minimum pass marks 35%

INSTRUCTION FOR THE PAPER SETTER

The question paper will consist of three sections A, B & C. Each of section A, B will have four questions from the respective syllabus. Each will consist of five marks. Section C will have one compulsory question having five parts of short-answer type covering the entire syllabus uniformly. Each will consist of two marks.

INSTRUCTION FOR THE CANDIDATES

Candidates are required to attempt five questions in all; selecting two questions from each section A & B. Section C is compulsory.

SECTION-A

Techniques for sketching parabola, ellipse and hyperbola. Reflection properties of parabola, ellipse and hyperbola. Classification of quadratic equations representing lines, parabola, ellipse and hyperbola.

SECTION-B

Spheres, Cylindrical surfaces. Illustrations of graphing standard quadric surfaces like cone, ellipsoid.

BOOKS RECOMMENDED

1. G.B. Thomas and R.L. Finney, *Calculus*, 9th Ed., Pearson Education, Delhi, 2005.
 2. H. Anton, I. Bivens and S. Davis, *Calculus*, John Wiley and Sons (Asia) Pvt. Ltd., 2002.
 3. S.L. Loney, *The Elements of Coordinate Geometry*, McMillan and Company, London.
 4. R.J.T. Bill, *Elementary Treatise on Coordinate Geometry of Three Dimensions*, McMillan India Ltd., 1994.
-

B.Sc. CSM- II
Semester-IV
BCSMCC(C)-401: DATABASE MANAGEMENT SYSTEMS
(Common for B.Sc. Non Medical/ B.Sc. CSM/ B.A.)

Credits:4

External Examination:75

Internal Assessment:25

INSTRUCTIONS FOR THE PAPER SETTER

The question paper will consist of three Units I, II & III, Each Unit I, II will have four questions from the respective Units of the syllabus. Each will have 12 marks. Unit III will consist of one compulsory question having 9 Questions of short-answer type covering the entire syllabus uniformly. All the questions will carry 3 marks.

INSTRUCTIONS FOR THE CANDIDATES

Candidates are required to attempt five questions in all; selecting two question from each Unit I & II and the compulsory question of Unit III. All the questions will carry equal marks.

Objectives:To understand the different issues involved in the design and implementation of a database system. To study the physical and logical database designs, database modeling, relational, hierarchical, and network models. To understand and use data manipulation language to query, update, and manage a database the given real world problem.

Unit-I

Database Management System : Definition, Characteristic advantages over traditional file processing system, Uses of database, DBA and its responsibilities Database schema, instance. DBMS architecture, data independence, mapping between different levels.

Database language : DDL, DML, DCL.

Data Models: hierarchical, network, relational.

Keys : Super, candidate, primary, unique, foreign.

Constraints: types of constraints, Integrity constraints,

Unit -II

Entity relationship model : concepts, mapping cardinalities, entity relationship diagram, weak sets, strong entity sets, aggregation, generalization, converting ER diagram to tables.

Relational Algebra : Basic operations, additional operations.

Database design : Functional dependency, decomposition, Normalization, multivalued dependency. Database design process, database protection, database integrity,

Transaction management and Concurrency control: Transaction management: ACID properties, serializability and concurrency control, Lock based concurrency control (2PL, Deadlocks), Time stamping methods, optimistic methods, database recovery management.

Text Book:

1. Siberscharts, Korth and Sudarshan, "Database Concepts", Mcgraw Hill Publication.

References:

1. Ivan Bayross, "Oracle 7 The complete reference", BPB Publications.
2. C..J. Date, "An Introduction to Database Systems", 3rd Ed., Narosa Publishers, (Reprint).
3. Jeffrey D. Ulliman, "Principles of Database Systems", 2nd Ed., Galgotia Publications.
4. D. Kroenke, "Database Processing", Galgotia Publications.

B.Sc. CSM II
Semester-IV
BCSMCC(C)-401(A):Software Lab based on DBMS
(Common for B.Sc. Non Medical/ B.Sc. CSM/ B.A.)

Credits:2

External Marks:50

The setting and evaluation will be done by a board of examiners consisting of Head External Examiner and the teacher(s) involved with the teaching of this paper.

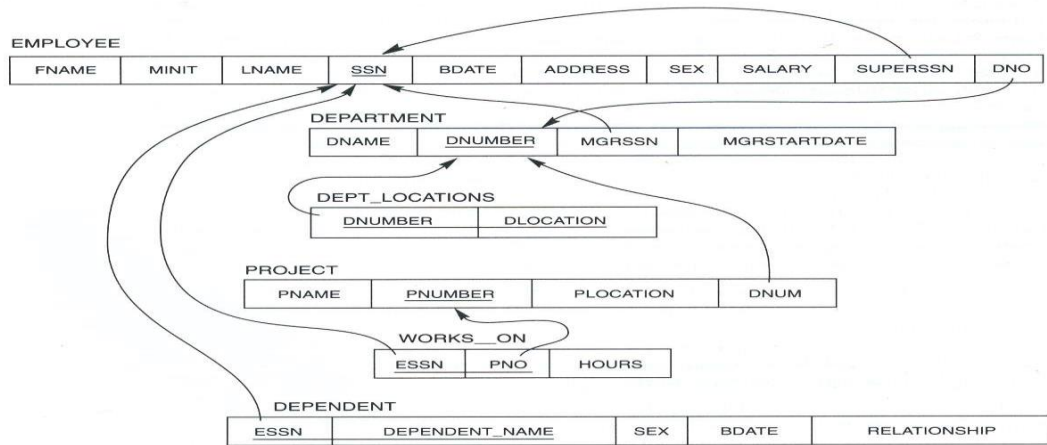
The practical paper will consist of four exercises and the candidates will be required to attempt any three exercises.

The breakup of marks for the University Examination will be as under:

Viva-voce:10 Exercises:20 Lab. Record:20

MySQL: Introduction, using DDL Commands,DML Commands, DCL commands

Implement Any schema and apply various queries



Example:

B.Sc. CSM II
Semester-IV
BCSMCC(S)402: SAMPLING TECHNIQUES

L T P
4 0 2

Max. Marks: 75
External Examination 55
Internal Assessment 20
Minimum pass marks 35%

Instructions for the Paper setter/Candidates

The Question paper will consist of three Sections A, B and C. Sections A and B will have four questions from respective sections of the syllabus. Each will have 09 marks. The students are required to attempt two questions from each section. Section C will be compulsory have only one question which will consist of at-least ten short answer type parts covering the whole syllabus. This question carries 19 marks.

Use of scientific non-programmable calculator is allowed.

SECTION – A

Concepts of population and sample, census and sample surveys, Need for sampling, Principle steps in a Sample Survey, uses of sampling, Merits and demerits of sampling, Sampling and Non-Sampling Errors.

Types of Sampling: Judgement, Probability and Mixed Sampling. Selection of simple random samples (SRS), Terminology, Simple random sampling (with and without replacement): Estimation of Variance of sample mean under SRS with and without replacement.

Stratified random sampling: Proportional, Neyman and optimum allocations, estimate of population mean and its variance, Principle advantage of stratified random sampling.

SECTION – B

Systematic sampling :estimate of population mean and its variance, comparison with stratified and simple random sampling.

Ratio and regression methods of estimation under simple random sampling without replacement, large sample expressions of their variances, comparison with mean per unit estimate.

TEXT BOOKS

- 1) Singh, D. and Chaudhary, F.S. : Theory and Analysis of Sample Surveys Design, Wiley East. 1st ed., 1986
- 2) William G. Cochran: Sampling Techniques, 3rd Edition.

B.Sc. CSM II
Semester-IV
BCSMCC(S)402(A): PRACTICAL OF SAMPLING TECHNIQUES

Credits: 2

Max. Marks: 50

External Marks(25)

Instructions for the paper setter and the candidates

The setting and evaluation will be done by a board of examiners consisting of Head, External examiner and the teacher(s) involved with the teaching of this paper.

The practical paper will consist of four exercises and the candidates will be required to attempt any three exercises. Use of scientific non-programmable calculator is allowed.

The break-up of marks for the University Examination will be as under:

Exercises: 15

Lab. Record: 04

Viva-voice: 06

Lab Course:

The examination will be based on the syllabus of the papers CSM-405(Sample Survey)

LIST OF PRACTICALS:

- 1) Draw a random sample from a Normal population
- 2) SRS without replacement Variance is less than the Variance obtained from Sampling with Replacement.
- 3) Verify- Sample mean is an Unbiased Estimator of Population Mean.
- 4) Using Proportional Allocation Technique draw the sample.

**B.Sc. CSM-II
SEMESTER-IV**

BCSMCC(M)-403: ALGEBRA

(Common for B.Sc. Non Medical/ B.Sc. CSM/ B.A.)

L T P
5 1 0

Max. Marks: 100
External Examination 75
Internal Assessment 25
Minimum pass marks 35%

INSTRUCTION FOR THE PAPER SETTER

The question paper will consist of three sections A, B & C. Each of section A, B will have four questions from the respective syllabus. Each will consist of twelve marks. Section C will have one compulsory question having nine parts of short-answer type covering the entire syllabus uniformly. Each will consist of three marks.

INSTRUCTION FOR THE CANDIDATES

Candidates are required to attempt five questions in all; selecting two questions from each section A & B. Section C is compulsory.

SECTION-A

Definition and examples of groups, examples of abelian and non-abelian groups, the group Z_n of integers under addition modulo n and the group $U(n)$ of units under multiplication modulo n . Cyclic groups from number systems, complex roots of unity, circle group, the general linear group $GL_n(n, R)$, groups of symmetries of (i) an isosceles triangle, (ii) an equilateral triangle, (iii) a rectangle, and (iv) a square, the permutation group $Sym(n)$, Group of quaternions. Subgroups, cyclic subgroups, the concept of a subgroup generated by a subset and the commutator subgroup of group, examples of subgroups including the center of a group. Cosets, Index of subgroup, Lagrange's theorem, order of an element, Normal subgroups: their definition, examples, and characterizations, Quotient groups.

SECTION-B

Definition and examples of rings, examples of commutative and non-commutative rings: rings from number systems, Z_n the ring of integers modulo n , ring of real quaternions, rings of matrices, polynomial rings, and rings of continuous functions. Subrings and ideals, Integral domains and fields, examples of fields: Z_p , Q , R , and C . Field of rational functions.

BOOKS RECOMMENDED

1. John B. Fraleigh, *A First Course in Abstract Algebra*, 7th Ed., Pearson, 2002.
2. M. Artin, *Abstract Algebra*, 2nd Ed., Pearson, 2011.
3. Joseph A Gallian, *Contemporary Abstract Algebra*, 4th Ed., Narosa, 1999.
4. George E Andrews, *Number Theory*, Hindustan Publishing Corporation, 1984.

B.Sc. CSM-II
Semester-IV
BCSMSEC(C)-404 PHP Programming
(Common for B.Sc. Non Medical/ B.Sc. CSM/ B.A.)

Credits:2

M. Marks:50

Introduction to PHP:PHP introduction, inventions and versions, important tools and software requirements(like Web Server, Database, Editors etc.) PHP with other technologies, scope of PHP Basic Syntax, PHP variables and constants Types of data in PHP , Expressions, scopes of a variable (local, global)

PHP Operators : Arithmetic, Assignment, Relational , Logical operators, Bitwise , ternary and MOD operator. PHP operator Precedence and associativity

Handling HTML form with PHP:Capturing Form Data GET and POST form methods Dealing with multi value fields Redirecting a form after submission.

PHP conditional events and Loops:PHP IF Else conditional statements (Nested IF and Else) Switch case, while ,For and Do While Loop Goto , Break ,Continue and exit.

PHP Functions:Function, Need of Function , declaration and calling of a function PHP Function with arguments, Default Arguments in Function Function argument with call by value, call by reference Scope of Function Global and Local.

Array: Anatomy of an Array ,Creating index based and Associative array ,Accessing array Looping with Index based array, with associative array using each() and foreach() Some useful Library function

String Function: strcmp(), strrev(), strtolower(), strtoupper(), strcat(), implode() , explode(), md5(), substr(), trim(), ucfirst()

Practicals:

1. Create a PHP page using functions for comparing three integers and print the largest number.
2. Write a function to calculate the factorial of a number (nonnegative integer). The function accept the number as an argument.
3. WAP to check whether the given number is prime or not.
4. Create a PHP page which accepts string from user. After submission that page displays the reverse of provided string.
5. Write a PHP function that checks if a string is all lower case.
6. Write a PHP script that checks whether a passed string is palindrome or not? (A palindrome word, phrase, or sequence that reads the same backward as forward, e.g., madam or nurses run)
7. WAP to sort an array.
8. Write a PHP script that removes the whitespaces from a string.Sample string : "The quick " " brown fox Expected Output : The Quick""brown fox

Text Book:

1. Beginning PHP 5.3 by Matt Doyle

References:1. WordPress 24-Hour Trainer, 3rd Edition by George Plumley

2. Beginning PHP 6, Apache, MySQL 6 Web Development by Timothy Boronczyk, Elizabeth Naramore, Jason Gerner, Yann Le Scouarnec, Jeremy Stolz

B.Sc. CSM II
Semester-IV
BCSMSEC(S)-405: INDUSTRIAL STATISTICS

L T P
2 0 0

Max. Marks: 50
External Examination 40
Internal Assessment 10
Minimum pass marks 35%

INSTRUCTION FOR THE PAPER SETTER

The question paper will consist of three sections A, B & C. Each of section A, B will have four questions from the respective syllabus. Each will consist of five marks. Section C will have one compulsory question having five parts of short-answer type covering the entire syllabus uniformly. Each will consist of two marks.

INSTRUCTION FOR THE CANDIDATES

Candidates are required to attempt five questions in all; selecting two questions from each section A & B. Section C is compulsory.

Use of scientific non-programmable calculator is allowed.

SECTION – A

Statistical Quality Control: Definition and its benefits, Basis of SQC: Chance and Assignable Causes, Process and Product Control, Major parts of Control Charts for process Control, three sigma probability, Control, Tolerance and specification limits.

Schewhart Control Charts for mean and S.D. and range, Control Charts for number of defectives (d-chart) and fraction defective (p-chart), control chart for number of defects (c-chart).

SECTION – B

Product Control (by Sampling inspection plan)- Attribute, the concept of Producer's and Consumer's risks, AQL, LTPD, AOQ, AOQL, ASN and OC functions and curves, single sampling plans and double sampling

TEXT BOOKS

- 1) Gupta, S.C. and Kapoor, V.K.: Fundamental of Applied Statistics, Sultan Chand & Sons Educational Pub. New Delhi 2014.
- 2) Goon, A.M., Gupta, M.K. and Dasgupta, B. : Fundamentals of Statistics, Vol. II, World Press, 6th Ed.(revised and enlarged),2008.
- 3) Kanti, Swarup, Gupta, P.K.and Manmohan: Operations Research, Sultan Chand and Sons, New Delhi, Edition-1996

B.Sc. CSM-II
SEMESTER-IV
BCSMSEC(M)-406(A): NUMBER THEORY
(Common for B.Sc. Non Medical/ B.Sc. CSM/ B.A.)

L T P
2 0 0

Max. Marks: 50
External Examination 40
Internal Assessment 10
Minimum pass marks 35%

INSTRUCTION FOR THE PAPER SETTER

The question paper will consist of three sections A, B & C. Each of section A, B will have four questions from the respective syllabus. Each will consist of five marks. Section C will have one compulsory question having five parts of short-answer type covering the entire syllabus uniformly. Each will consist of two marks.

INSTRUCTION FOR THE CANDIDATES

Candidates are required to attempt five questions in all; selecting two questions from each section A & B. Section C is compulsory.

SECTION-A

Divisibility, division algorithm, greatest common divisor, least common multiple, application of Euclidean algorithm, linear Diophantine equation.

Introduction of prime numbers, fundamental theorem of arithmetic, Goldbach conjecture.

(Scope as in chapter 2, 3 of RR1)

SECTION-B

Basic properties of congruence, complete and reduced set of residues, linear congruence, Chinese Remainder theorem, Fermat's theorem and its applications, Wilson's theorem and its applications. (Scope as in chapter 4, 5 of RR1 up to sec 5.3)

TEXT BOOKS:

1. David M. Burton: Elementary Number Theory, Tata McGraw-Hill Edition, 6th Ed., Indian reprint, 2007.
2. Niven and Zuckerman: Introduction to Number Theory, Wiley Eastern, 3rd Ed.
3. Hardy and Wright: Introduction to Number Theory, Oxford University Press, 5th Edition.

B.Sc. CSM-II
SEMESTER-IV
BCSMSEC(M)-406(B): Statistical Methods
(Common for B.Sc. Non Medical/ B.Sc. CSM/ B.A.)

L T P
2 0 0

Max. Marks: 50
External Examination 40
Internal Assessment 10
Minimum pass marks 35%

Instructions for the Paper setter/Candidates

The Question paper will consist of three Sections A, B and C. Sections A and B will have four questions from respective sections of the syllabus. Each will have 05 marks. The students are required to attempt two questions from each section. Section C will be compulsory have only one question which will consist of ten short answer type parts covering the whole syllabus. This question carries 10 marks.

Use of scientific non-programmable calculator is allowed.

SECTION - A

Introduction to Statistics: Meaning and scope, advantage and disadvantage of statistics, Collection of data: Primary and secondary data (Methods of collecting data), Designing a questionnaire. Diagrammatical representation of data, frequency distribution

Graphical representation of data: Histogram, Frequency Polygon, Frequency Curves and ogives, Stem and Leaf display.

SECTION-B

Analysis of Quantative data: Measures of central tendency and Dispersion, Properties of an ideal measures of central tendency, Types of average- A.M., H.M., Median, Mode, Range, Mean deviation, Standard deviation, Variance and coefficient of variation.

Measures of Skewness, Definition of Skewness, Karl-Pearson's coefficient of skewness, bowley's coefficient of skewness, kurtosis, Sheppard's correction for moments(without derivation)

Text Books:

1. Goon,A.M., Gupta, M.K.: An Outline of Statistical Theory. Vol. I, and Dasgupta, B. 1985, Ed.3rd, World Press.
2. Gupta, S.C. and Kapoor, V.K.: Fundamental of Mathematical Statistics, Sultan Chand & Sons Educational Pub. New Delhi.