

B.Sc. (Computer Science)
Pt - II Examination
BCS -201- Computer Oriented Statistical Method

Time: 3 Hrs

Max.Marks: 75

Unit I

Introduction to Statistics: meaning, scope of statistics, collection and classification of data.

Unit II

Application based on and processing logic of measures of central tendency, dispersion, skewness and kurtosis.

Unit III

Bivariate Data: Correlation - Meaning types of correlation, Karl Pearson's Correlation and rank correlation, properties of correlation coefficients.

Unit IV

Linear Regression: Processing logic and numerical based of fitting of regression lines (using least square method).

Unit V

Various properties related to regression coefficients.

Text / Reference Books

1. Gupta S.C. Kapoor, V.K., "Elements of Mathematical Statistics", S. Chand & Sons.
2. S.C. Gupta, "Fundamentals of Mathematical statistics", PIII, 1991
3. Bala Guruswamy, "Computers oriented Statistical Methods", S.Chand, 1990
4. S.P. Gupta, "Fundamentals of Statistics", S.Chand 1993.
5. M.R. Spiegel, "Statistics", Schaum Series, McGraw-Hill, 1981.

BCS- 202 Computer Organization

Time: 3 Hrs

Max.Marks: 75

UNIT- I

Basic Computer Organization: Instruction codes, direct and indirect address, timing and control signal generation, instruction execution cycle, memory reference instructions, input output instructions.

Register Transfer and Micro Operations: Bus and memory transfers, three state bus buffers, binary adder, binary incrementer, arithmetic circuit, and logic and shift micro operations, ALU.

UNIT- II

Central Processing Unit: General register organization, memory stack, one address, two address instructions, data transfer, arithmetic, logical and shift instructions, software and hardware interrupts (only brief introduction), arithmetic and instruction pipelines.

UNIT- III

Computer Arithmetic: Addition and subtraction with signed magnitude data, multiplication algorithms, hardware algorithm and booth algorithm, division algorithm.

UNIT - IV

Input Output Organization: Asynchronous data transfer- handshaking, asynchronous serial transfer, interrupt initiated I/O, DMA transfer, interfacing, peripherals with CPU (introduction), keyboard, mouse, printer, scanner, network card.

UNIT- V

Memory Organization: ROM, RAM, hard disk, CD-ROM, Cache memory- direct mapping scheme, virtual memory concept.

Suggested Book

1. Computer System Architecture, Mano M., Pearson Education.
2. Hayes J.P., Computer Organization and Architecture, Tata Mc-Graw Hill Publishing Company Ltd. New Delhi.

BCS 203: Fundamentals of Operating Systems

Time: 3 Hrs

Max.Marks: 75

Unit – I

Introduction: Definition of an operating system, Mainframe, desktop, single user & multi user OS distributed, real-time and handheld OS.

Unit – II

Operating System Structures: System components, operating system services, system calls, systems programs, system structure, virtual machines.

Process Management: criteria, scheduling algorithms, algorithm evaluation.

Process Synchronization: The critical section problem, semaphores, classical problems of synchronization.

Unit – IV

Memory Management: Swapping, contiguous memory allocation, paging, segmentation, segmentation with paging.

Unit – V

Virtual Memory: Demand paging, page replacement, allocation of frames, thrashing.

Text / Reference Books

1. Operating System Concepts, Silberschatz G.G., John Wiley & Sons Inc.
2. Operating System Concepts, Galvin, Addison Wesley.
3. Operating System, Ritchie, BPB Publications.

BCS 204: Web Technology

Time: 3 Hrs

Max.Marks: 75

Unit – I

Introduction to Basics of Internet

Concepts of Internet : Domain, IP Addressing, Resolving Domain Names, Overview of TCP/IP and its Services, WWW.

Unit – II

Designing Pages with HTML

Introduction to HTML, Essential Tags, Deprecated Tags, Tags and Attributes, Text Styles and Text Arrangements, Text, Effects, Exposure to Various Tags (DIV, MARQUEE, NOBR, DFN, HR, LISTING, Comment, IMG), Color and Background of Web Pages, Lists and their Types, Attributes of Image Tag,

Unit – III

Hypertext, Hyperlink and Hypermedia, Links, Anchors and URLs, concept of navigation, Different Section of a Page and Graphics, Footnote and e-Mailing, Creating Table, Frame, Form and Style Sheet.

Unit – IV

DHTML

Dynamic HTML, Document Object Model, Features of DHTML, CSSP (Cascading Style Sheet Positioning) and JSSS (JavaScript assisted Style Sheet), Layers of Netscape, The ID Attribute, DHTML Events.

Unit – V

Web Designing Tools

Front Page Basics , Web Terminologies, Phases of Planning and Building Web Sites, The FTP, HTTP and WPP, Features, Front Page Views, Adding Pictures, Backgrounds, Links, Relating Front Page to DHTML.

Text / Reference Books

1. HTML Black Book – Steven Holzner – Dreamtech Press
2. HTML, Java Script, DHTML, PERL, CGI – Evan Bayross – BPB
3. Web Programing, Kris James, Frank, Bris & Co.
4. Principles of Web Design, Joel Sklar, Vikas Publication.

BCS 205: Data Structure

Time: 3 Hrs

Max.Marks: 75

Unit I

Introduction: structure and problem solving, algorithmic notation, Data Structure, Algorithms and sub algorithms, introduction to algorithm analysis for time and space

Unit II

Primitive and non primitive data structure concept, representation and manipulation of strings, concept and terminology for non primitive data structure, concept of arrays, stacks, queues. Basic operations on arrays, stacks & queues.

Unit III

Linear data structures and their linked storage representation: pointers and linked allocation, linked linear list, singly linked list, application of linked linear lists.

Unit IV

Non Linear data structure: Trees, types of trees, Graphs and their representations, applications of graph.

Unit V

Sorting and searching: concept of sorting and searching , selection sort, bubble sort, merge sort, binary search

Text / Reference Books

1. An Introduction to Data Structures with Applications, Tremblay & Sorensens, Tata Mcgraw hills publications.
2. Data structure and algorithms, Aho., Alfred V., Pearson Education.
3. Fundamentals of Data structure in C, Horowitz, Ellis, Galgotia publication.