COMPUTER OPERATOR

KIRTADS

(CATEGORY NO. 390/2013)

PART I

Unit 1: Computer Organization

Basic Structure of computers, Boolean algebra and logic gates, methods of minimization of logic functions, Processing unit, I/O organization, Standard I/O interfaces, Memory system, Software Installation, Trouble shooting of computers, components and peripherals - hardware and software faults.

Unit 2: Database Management System

Database system concepts and architecture, data models schema and instances, data independence, data integrity, data base language and interfaces, ER model concepts, Concepts of Super Key, candidate key, primary key, Generalization, aggregation, Relational data model concepts, integrity constraints, Relational algebra, Relational calculus. SQL, SQL commands, SQL operators, Tables, views and indexes, Functional dependencies, Normal forms: first, second, third, fourth and fifth normal forms, BCNF, normalization using functional dependencies, multi-valued dependencies, and joint dependencies. Transaction system, Testing of Serializability, Serializability of schedules, Recoverability, Recovery from transaction failures, log based recovery, checkpoints, deadlock handling. Concurrency Control Techniques: Concurrency control, locking Techniques for concurrency control, Time stamping protocols for concurrency control.

Unit 3: Web Technologies

Internet, WWW, Web Browsers and Web Servers, URLs, MIME, HTTP, Security, TCP/IP, Higher Level Protocols, Web Search Engines, Application Servers, XHTML, Basic text markup, Images, Hypertext Links. Lists, Tables, Forms, Frames. Cascading Style Sheets: Introduction, Levels of style sheets, Style specification formats, Selector forms, Property value forms, Font properties, List properties, Color, Alignment of text, The box model, Background images, The <span> and <div> tags, JavaScript: Syntactic characteristics, Primitives, operations, and expressions, Screen output and keyboard input, Control statements, Object creation and modification, Arrays, Functions, Constructors, Pattern matching using regular expressions, Errors in script, JavaScript and HTML Documents, The

Document Object Model, Elements Access in Java Script, Events and Event Handling, Dynamic Documents with JavaScript, XML, Document structure, Document type definitions, Namespaces, XML schemas, XML processors, Web services.

Unit 4: Operating System and System Software

Batch Systems, Multi-programmed Batched Systems, Time-Sharing Systems, Personal Computer Systems, Distributed Systems and Real –Time Systems, Operating System Services, System Calls, System Programs, Process Management, PCB, Process Scheduling, CPU Scheduling, FIFO, RR, SJF, Multi-level, Multi-level feedback. Storage Management, Logical and Physical Address Space, Swapping, Contiguous Allocation, Paging, Segmentation, Virtual Memory, Demand Paging, Page Replacement Algorithms, Allocation of Frames, Thrashing and Demand Segmentation, File System, Access Methods, Directory Structure, Protection, I/O Systems, I/O interface, Disk Structure, Disk Scheduling, System software and application software, Language processing, Language specification, Phases of language processor, Assembly Language statements, forward reference problem, two pass assemblers and single pass, Macro Definition, macro call, macro features, Compliers, Phases of compiler, syntactic structure of language, Grammars, Scanning, Parsing techniques, Code optimization, Linkers, Loaders.

Unit 5: Programming Languages

Data types, Operators, Control statements, Iteration statements, arrays, strings, pointers, functions, File I/O, classes, objects, references, polymorphism, inheritance, exception handling, interfaces and packages (C++ and JAVA).

Unit 6: Data Structures and Algorithms

Data structures – Arrays, Linked Lists, Stacks, Queues, Trees, Graphs, Sets, Tables. Algorithms – Analysis of algorithms, order notations, Searching algorithms, Sorting algorithms, Graph algorithms.

Unit 7: Computer Networks

ISO-OSI, TCP/IP - Layered architecture, different protocols, functions, Components for network and internet communications, configuration, verification and trouble shooting of components, basic utilities, IP addressing, DNS, NAT, DHCP, Security issues in network.

Unit 8: Linux Administration

Standard Installation: Exploring Components, Checking supported Hardware, Creating the Boot Disk, Starting the Installation, Partitioning the Hard Disk, Using Disk Druid, Configuring the Installation, Package Installation, Examining the boot process, Exploring Run-levels, GRUB Configuration, File System, Linux Disk Management. Using Package Manager, Checking versions, Installing software from source, Hardware Device Installation, Device Information, Device Files, Hardware Abstraction Layer, Manual Devices, Installing and Managing Terminals and Modems, Installing Sound, Network and Other cards, Modules- Kernel Module Tools, Managing Modules, Installing new modules, Managing Processes, Maintaining the File System, Time Keeping, Automating Scripts, Administering User Accounts, Working with Group Accounts, Understanding

the Root Account, Creating a Backup Plan, Choosing Media for backup, Understanding backup Methods, Using Backup Tools. Performance Monitoring Tools, Measuring Memory Usage, Viewing Running Tasks, Monitoring I/O Activity, Configuring X Server – Setting Display Resolution and Changing Video Card Type, TCP/IP Networking, Understanding and Setting up Network Interface Card (NIC), working with Gateways and Routers, Configuring DHCP Server and Client, Editing Network Configuration, NFS Overview, Installing & Configuring NFS Server, Configuring NFS Client, using Automount Services, Configuring NIS Server and NIS Client, Installing Samba, Creating Samba Users, Starting Samba Server and Connecting to Samba Client.

PART II

General Knowledge, Current Affairs & Renaissance in Kerala

NOTE: - It may be noted that apart from the topics detailed above, questions from other topics prescribed for the educational qualification of the post may also appear in the question paper. There is no undertaking that all the topics above may be covered in the question paper.