

Department of Information Technology

Assistant Professor recruitment test Syllabus

UNIT 1

Programming in c and Data Structures : Functions, Recursion, Parameter passing, Scope, Binding; Abstract data types, Arrays, Linked Lists, Stacks, Queues, Trees, Graphs, Sorting and searching algorithm

UNIT 2

Computer Organization : Basic computer organization and Design : Machine instructions and addressing modes, Microprogrammed control CPU control design, Memory interface, I/O interface (Interrupt and DMA mode), pipelining and vector processing, computer arithmetic, Memory organization.

Operating System : Processes, Threads, Inter-process communication, Concurrency, Synchronization, Deadlock, CPU scheduling, Memory management and virtual memory, File systems, I/O systems, Protection and security.

UNIT 3

Computer Networks : Reference Models (ISO-OSI, TCP/IP), Internetworking LAN technologies (Ethernet, Token ring), Flow and error control techniques, Routing algorithms, Congestion control, TCP/UDP and sockets, IP, Application layer protocols Network security – basic concepts of public key and private key cryptography, Domain Name System

UNIT 4

Database Management Systems : ER-model, Relational model (relational algebra, tuple calculus), Database design (integrity constraints, normal forms), Query languages (SQL), File structures (sequential files, indexing, B and B+ trees), Transactions and concurrency control.

Software Engineering: information gathering, requirement and feasibility analysis, data flow diagrams, process specifications, input/output design, process life cycle, planning and managing the project, design, coding, testing, implementation, maintenance.

UNIT 5

Automata Languages and Computation: Regular languages and finite automata, Context free languages and Push-down automata, Recursively enumerable sets and Turing machines, Undecidability.

Compiler Construction: Lexical analysis, parsing, LL1, SLR, CLR, LALR, syntax-directed translation. Runtime environments. Intermediate code generation