

Department of Computer Science and Engineering

Syllabus for Ph.D Admission Eligibility Test

UNIT – I: Data Structures and Algorithms

Programming in C, Asymptotic Notations, stacks, queues, linked lists, trees, binary search trees, binary heaps, Graphs, Searching, Sorting and Hashing. Algorithm design techniques: divide-and-conquer, Greedy, Dynamic programming and Backtracking, NP-Hard and NP-Complete.

UNIT II : Computer Organizations and Operating Systems

Boolean algebra, Number representations and computer arithmetic, Instructions and addressing modes

Instruction pipelining Memory hierarchy. I/O interface (interrupt and DMA mode).

System calls, processes, threads, inter-process communication, concurrency and synchronization. Deadlock. CPU and I/O scheduling. Memory management and virtual memory. File systems.

UNIT – III Data Warehousing and Mining

Databases and Database users, Database systems concepts and Architecture, Data modeling using the Entity-Relationship model, Introduction to Data Mining, Business Intelligence, Data Warehouse and OLAP Technology, Data Preprocessing, Extraction, Transformation and Loading, Data Mining Primitives, Regression, Associations, Classification and Prediction, Cluster Analysis.

UNIT – IV Networks and Security-

The OSI model, layers in OSI model, TCP/IP suite, Physical Layer, Data link layer, Medium Access sub layer Network Layer, Transport Layer, Application Layer, Secret Key Cryptography, Hash Functions and Message Digests, Public key Cryptography and Authentication.

UNIT – V Artificial Intelligence and Cloud Computing

Problem Solving by Searching, Knowledge and Reasoning, Uncertain knowledge and Reasoning, Learning, Problem Solving by Searching, Cloud Computing Overview, Cloud Insights, Cloud Architecture- Layers and Models, Virtualization, Simulators of Cloud.

UNIT – VI Software Engineering

Process Models, Agile Process Model, Requirement Engineering, Design Engineering, Software Metrics and Testing, Object Oriented Design.