

**DEVI AHILYA VISHWAVIDYALAYA, INDORE
INSTITUTE OF ENGINEERING & TECHNOLOGY
COMPUTER ENGINEERING & INFORMATION TECHNOLOGY**

**SYLLABUS FOR DOCTORAL ENTRANCE TEST (DET)
(Effective from 1st July 2017)**

PART- A

Part-A shall consist of 50 objective type compulsory questions of 1 mark each based on research methodology. It shall be of generic nature, intended to assess the research aptitude of the candidate. It will primarily be designed to test reasoning ability, data interpretation, and quantitative aptitude of the candidate.

PART-B

Part-B shall consists of 50 objective type compulsory questions of 1 mark each based on the syllabus of the subject contents at Masters Level as under:

Discrete Mathematics: Sets, Functions and Relations; Propositions, Mathematical Induction, Graph Theory, Boolean algebra.

Data Structures: Arrays and List, Stacks, Queues, Trees, Graphs, Hashing and Sorting, Heap.

Operating System: Process Management, Process Synchronization and Deadlocks, Memory Management, File System, Disk Management.

Databases: Database Analysis and Modelling, Database Design, Transaction Processing and Concurrency Control, SQL and PL/SQL.

Analysis of Algorithms: Time and space complexity; Asymptotic Analysis. Recurrence relations, Analysis of Sorting and Searching Algorithms, Algorithm Design Techniques, Polynomial Algorithms, Nondeterministic Algorithms.

Theory of Computation: Grammar and Automata; Finite State Machines, Regular Expressions, Context Free Languages, Pushdown Automata, Turing Machine.

Computer Architecture:

I/O and memory organization, Cache Memory, Pipelining and Vector Processing, Multiprocessor Architecture, Performance issues

Computer Networks: Network Models-OSI and TCP/IP, Physical Layer, Data link layer and MAC protocols, Network layer, Transport layer and Application layer.

Software Engineering: Software Development Life Cycle, Software Process Models, Requirement Analysis, Software Design, Software Testing, Software Maintenance, Cost estimation.
