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DEVI AHILYA VISHWAVIDYALAYA, INDORE
FACULTY OF ENGINEERING
COMPUTER ENGINEERING & INFORMATION TECHNOLOGY

SYLLABUS FOR DOCTORAL ENTRANCE TEST (DET)
(Effective from 1st July 2021)

PART-B

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

Discrete Mathematics and Theory of Computation: Sets, Functions and Relations; Propositions, Mathematical Induction, Graph Theory, Boolean algebra, Grammar and Automata; Finite State Machines, Regular Expressions, Context Free Languages, Pushdown Automata, Turing Machine.

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 Distributed Databases: Concepts, Techniques for Distributed database design – Data fragmentation, replication, and allocation techniques. Introduction to Data Mining Primitives, Knowledge Discovery in Databases (KDD), Association & Classification Techniques.

Data Structures and Analysis of Algorithms: Arrays and List, Stacks, Queues, Trees, Graphs, Hashing and Sorting, Heap, Time and space complexity; Asymptotic Analysis, Recurrence relations, Analysis of Sorting and Searching Algorithms, Algorithm Design Techniques, Polynomial Algorithms, Nondeterministic Algorithms.

Computer Architecture: I/O and memory organization, Cache Memory, Pipelining and Vector Processing, Multiprocessor Architecture, Performance issues, Interconnection Networks.

Computer Networks and Network Security: Network Models-OSI and TCP/IP, Physical Layer, Data link layer and MAC protocols, Network layer and Internetworking, Transport layer and End-to End Protocols and Application layer, Software Defined Networking, Internet of Things, Cryptographic Techniques, Symmetric Key cryptography, Asymmetric Key Cryptography, Hash Function and Digital Signature .

Software Engineering: Software Development Life Cycle, Software Process Models, Requirement Analysis, Software Design, Software Testing, Software Maintenance, Cost estimation, Introduction to Software Project Management, Project Evaluation, Activity Planning, Dev-Ops, Agile process.

Artificial Intelligence and Machine Learning: Supervised Learning, Classification and Regression learning methods, Unsupervised Learning –Clustering, Artificial Neural Networks.

Cloud Computing : Challenges in Virtualization, Cloud Service and Deployment Models, Cloud Migration and Migration Strategies and Risk Associated during migrating.

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