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

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

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 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.

Vimela Tolcellar
29/9/2021

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Meinal
29/9/2024

Raxuni
29/09/2024

Cpastidar
29/09/21