

SVKM's NMIMS University

Mukesh Patel School of Technology Management & Engineering, Mumbai

Department of Information Technology

Syllabus for PhD Entrance Test

Effective from May, 2026

SECTION- A

Section A will include 25 compulsory objective-type questions, each carrying 2 marks. It will be focused on research aptitude. The section will be general in nature and aims to evaluate the candidate's research aptitude, with emphasis on reasoning ability, data interpretation, and quantitative skills.

SECTION-B

Section B will comprise 25 compulsory objective-type questions, each carrying 2 marks, based on the following syllabus:

UNIT I- Assembly Language Programming

- Assembly language programming fundamentals
- Machine instructions and addressing modes
- Memory hierarchy: cache, main memory, secondary storage
- I/O interface: Interrupt handling, DMA mode
- Basic CPU organization, control unit concepts

UNIT II- Programming Skills & Data Structures:

- Programming in C: Data types, arrays, pointers, structures, functions, file handling
- Data Structures: Linked lists, stacks, queues, trees, hashing, graphs
- Algorithms: Searching, sorting, hashing, design techniques

UNIT III- Database Systems

- ER model
- Relational model: SQL
- Integrity constraints
- Normalization & normal forms
- File organization

UNIT IV- Data Mining & Data Warehousing

- Data preprocessing and transformation techniques
- Association rule mining, clustering, classification
- Data warehouse architecture, OLAP operations
- Data cube technology, ETL processes

UNIT V – Computer Networks

- Concept of layering
- LAN technologies (Ethernet)
- Basics of Wi-Fi
- Network security essentials
- Basic routing and switching concepts

UNIT VI - Cloud Computing, Soft Computing & IoT

- Basics of cloud computing
- Virtualization and distributed systems
- Soft computing fundamentals
- IoT architecture, components, and applications