

**Tentative Syllabus for the Post of Junior Laboratory Assistant (Technical)  
Digital & Computing Services- Networks & Server Administration  
Post Code- 018  
Advertisement No. IIT Mandi/Recruit./NTS/2025/05 dated 17.12.2025**

### **1. Computer Networks Fundamentals**

Basics of computer networking; Network types: LAN, WAN, MAN, WLAN; OSI and TCP/IP models; IP addressing (IPv4/IPv6) and subnetting concepts; MAC addressing and ARP; Common network devices: hub, switch, router, firewall, access point; TCP and UDP concepts; Common protocols: HTTP/HTTPS, FTP, SFTP, SMTP, POP3, IMAP, DNS, DHCP, SNMP.

### **2. Switching and Routing Basics**

Ethernet concepts; VLANs; Static and dynamic routing (basic concepts); NAT and PAT; Overview of routing protocols such as RIP and OSPF.

### **3. Linux Server Administration**

Linux directory structure and file system concepts; User and group management; File permissions and ownership; Process and service management; Package management using apt, yum, and dnf; System startup and service management (systemctl basics); Log files and basic troubleshooting; Common system and network tools (ping, traceroute, netstat/ss, top, df, du).

### **4. Server Services and Management**

Web servers (Apache/Nginx – basic configuration concepts); File servers (NFS, Samba – basic concepts); Mail server fundamentals; Database server basics; DNS and DHCP server fundamentals; Backup and restore concepts.

### **5. Virtualization and Cloud Basics**

Concepts of virtualization; Hypervisors; Virtual machines and containers; Introduction to cloud computing concepts including IaaS, PaaS, and SaaS.

### **6. Storage and Backup Systems**

Storage types: DAS, NAS, SAN; RAID concepts and RAID levels; Backup strategies and tools; Basics of data recovery.