Selection Process for the post of Technical Officer [CCS]

(Staff Recruitment Advt. No.: IITDh/Admin/SR/29/2024-25 dated 26th August 2024)

All the shortlisted candidates are required to appear in person for the Tests scheduled on 22nd July 2025. This will be qualifying in nature and the candidates shall be further shortlisted for the Personal Interview.

Those candidates who qualify in the Tests as per the benchmark decided by the Selection Committee, shall be shortlisted for the Personal Interview.

The Personal Interview for the shortlisted candidates after the Tests will be conducted on 22nd July 2025. The venue for both stages is IIT Dharwad, Karnataka.

Examination Pattern:
Test –I [MCQ Type]

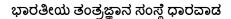| Section	Topics/Subjects	Time Duration
1	General Ability Test	90 Minutes
2	Technical/ Skill Test	

Note: 60% of the marks will be deducted for every wrong answer in the MCQ test.

Test - II [Computer-based test]

Section	Topics/ Subjects	Time Duration
3	Technical Trade/Skill Test	60 Minutes

Broad areas of syllabus for each section are as follows:

Section	Topics/Subjects	Broad Syllabus
1	General Ability Test	Synonyms and Antonyms, Error Spotting/ Correction, Phrasal Verbs, Idioms, and Phrases, etc. Number Series, Letter Series, Coding-Decoding, Direction Sense, Logical Reasoning, Mental Reasoning, Percentage, Average, Profit & Loss, Ratio & Proportion, Speed, Distance and Time, Simple and Compound Interest, Simplification, Mathematical Reasoning.
2 & 3	Technical/ Skill Test	**Computer Organization** Functional Components of Computer: CPU, Memory Unit, Input/Output Unit, Buses. Physical Memory Unit: Basic Memory Cells – SRAM and DRAM, Main Memory Unit, Cache Memory Unit – Mapping Methods, Cache Memory Hierarchy. Memory Management Unit: Virtual Memory Concept – Demand Paging, Page Table Structure, Page Table Entry, Translation Look- Aside Buffer. Input/Output Unit: I/O Control Mechanisms –Program controlled I/O, Interrupt controlled I/O, DMA controlled I/O; Peripheral devices – Keyboard, Display and Hard disk; Peripheral interfaces – PCI, SCSI 4. **Linux Operating System** Commands: Creation of user accounts, Directory Management Commands, File Management Commands, General Purpose Commands, Filters, Communication Commands - Check the Process Status; Process Management Commands, Search Patterns. Text Editor: File operations (New, Open, Close, Save, Save and Exit, Print) – Text Editing operations (Inserting, deleting, finding, replacing, copying and moving). Shell Scripts: Use of shell scripts, Numerical operations, Looping, Swapping Technique, String operations, Using Command line arguments, Date Functions,

Relational operations, Logical operations, Boolean operations, Basic arithmetic operations, Case statement, Search Directory or File

System Administration
Introduction: System Administration - Importance of System Administration Life Cycle – Role of System Administrator –Workstation – Server – Services – Data center Virtualization: Types of Virtualization: Hardware Virtualization – operating system Virtualization - Server Virtualization – Storage Virtualization. Virtualization Benefits - Virtualization Security Hardware Virtualization Technology – Windows Hyper Visors (HyperV) - How to Use Hyper-V Virtualization Technology – Virtualization Tools File System Management: Windows File and Directory Layout – NTFS – FAT - Disk Partitions –Defragmentation – Registry - Linux File and Directory Layout –EXT4– FreeBSD – EXT3 – VFAT – Disk Partitions Account Management: User management in Windows- creating and managing local users and groups – User and group
management in Linux - related commands - superuser - relevant files Memory Management: Windows Memory Architecture and Management – Linux Memory Architecture and Management Windows Administration: Processes – Windows boot process – system process – process identifier - user mode process – kernel mode process - managing start-up process; Windows Services: Active Directory – Domain – Tree – Forests- Groups – Objects – Task Scheduler; Windows Performance: Understanding Physical and Virtual memory – Paging File –Task Manager - Performance Monitor – Resource Monitor; Windows Security: Windows Defender – Firewall – Firewall Inbound/Outbound rules – Group Policy – Windows Services; Maintenance: WSUS (Windows Server Update Service) – Windows Backup & Recovery mechanisms – Windows Error Reporting (WER) Linux/Unix Administration: Boot process overview – Daemons – Boot Loaders GRUB –– start up scripts – process life cycle – process monitoring; Access Control: File
system access control – process ownership – management of root account – user management – ACL; Software Management: Package management tools – rpm – dpkg – apt – yum.

Computer Networks and Network Services
Introduction to Computer Networking Concepts: Layered Network Protocol Architecture Physical Layer: Basics of communications; Physical media types and their important bandwidth and bit-error-rate characteristics; Wired and Wireless media including copper cables, optical fiber and wireless.
Network Services: Domain Name System - Dynamic Host Configuration - Authentication servers - Directory services - e- Mail - File sharing - Instant messaging - Online game - Printing - File server - Voice over IP - Video on demand - Video telephony - World Wide Web -Simple Network Management – Time service Networking requisites and tools: Pre-requisites to connect the computers to access the shared resources – Exchange server configuration - Network monitoring tools.

Computer Hardware and Servicing
Motherboard components: Processor sockets/slots – Memory sockets – Chipsets – Cache– BIOS – Clock generator – RTC – Super I/O Controller – Power connector – Battery –Keyboard/Mouse Connectors – Jumpers – Ports and Headers – Pin Connectors -Motherboard Form factor - Hardware, Software and Firmware. Chipsets: Chipset basics - North /South Bridge

		architecture and Hub architecture. Memory: Primary and Secondary Memory - Memory speed – Access time - Wait states. Main Memory – types - Memory errors. Hard Disk: Construction – Working Principle – File Systems – Formatting and Troubleshooting. Removable Storage and Special Devices: DVD-ROM – Recordable DVD - Rewritable DVD. Blu- ray: Introduction - Blu-ray Disc Parameters – Recording and Playback Principles. Special drives: External drives, Memory stick, USB flash drive, Solid state drive. Keyboard and Mouse: Keyboard: Interfacing and Signals (USB, Wireless), Types of keys, Keyboard Matrix, Key bouncing, Types of keyboard (Simple, Mechanical). Mouse: Optical mouse operation – Optical mouse cleaning – Troubleshooting flowchart for a mouse. Printers and Scanners: Types of printers – Dot Matrix, Inkjet, Laser, Thermal, MFP printer (Multi- Function Printer) - Operation and Troubleshooting. Scanner: Scanner mechanism, working principle – Types of Scanners (Barcode, Handheld, Flatbed) – Preventive maintenance and Troubleshooting. Displays and Graphic Cards: Displays: LCD Principles – Plasma Displays – TFT Displays - LED Displays. Graphic Cards: Video capture card. SMPS: Basic Principles and Operations – O/P Voltage – Cable color code – Connectors and Power Good – Common Failures BIOS: BIOS functions – Cold and Warm booting – BIOS error codes – BIOS interrupts –BIOS advanced setup. Upgrading BIOS, Flash BIOS-setup.

Personal Interview: The final selection of the candidates will be based on the performance in the Personal Interview from amongst the candidates shortlisted after the Tests.