

# NATIONAL INSTITUTE OF TECHNOLOGY TIRUCHIRAPPALLI - 620 015

## Recruitment of Non-Teaching Positions-Group A

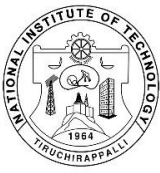
### Syllabus for written test

Post: Technical Officer

The list of eligible candidates as per the Essential Educational Qualification & Experience, mentioned in the Recruitment Rules 2019 for the post of TECHNICAL OFFICER in NITs will be displayed in the institute website. Those shortlisted applicants will have to undergo the following selection process, for final selection to the post of Technical Officer(PB-3 (Rs. 15,600-39,100) with GP of Rs. 5400/-) by direct recruitment.

Stage	Type of Examination	Time duration	Maximum Marks
Stage - I	Multiple Choice Questions based Written Test with 30% weightage to Part A and 70% weightage to Part B	90 minutes	100
Stage - II	Personal Interview for the shortlisted candidates	-	-

- All questions of Stage - I will be Objective type and will carry one mark each. For every wrong answer, there will be negative marking @ 1/4th marks for each wrong answer. Compensatory time for Persons with Benchmark Disabilities (Divyangjan) will be provided as per the extant orders of Government of India.
- The candidates shortlisted for Stage - II will be displayed in the institute website after Stage - I examination.
- Part A questions are to test the General Aptitude and Reasoning Skills of the candidates whereas Part B questions are to test the domain knowledge. The syllabus for the above post is given below. Candidates may note that it is not exhaustive but indicative only.

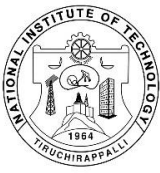


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## PART A

1. Aptitude - Averages, Number System, Profit and Loss, Time and Work, Problems on Trains, Compound Interest, Decimal Fractions, Calendar, Area, Problems on Numbers, Square Root and Cube Root, Probability, Interest, Percentage, Ratio, Time and Distance, Problems on Ages, Partnership, Clock, Simplifications, Volume and Surface, Problems on H.C.F and L.C.M, Logarithm, Chain Rule, Pipes and Cistern, Odd Man Out and Series, Height and Distance
2. Reasoning - Number Series Compilation, Missing Number Finding, Continuous Pattern Series, Direction Sense Test, Puzzle, Verbal Classification, Matching Definitions, Logical Deduction, Series Compilations, Classification, Missing Character Finding, Odd Man Out, Blood Relations, Analogy, Coding and Decoding, Truth Verification of The Statement, Syllogisms, Analogies, Verbal Reasoning, Statement And Conclusions, Letter and Symbol Series, Logical Problems, Logical Sequence Of Words, Arithmetic Reasoning, Data Sufficiency.
3. General English- Antonyms, Synonyms, Spelling Check, Change of Voice, Spotting Errors, Sentence Improvement, One Word Substitute, Selecting Words, Sentence Corrections, Idioms And Phrases, Communication Skills, Common Error Detection, Sentence Compilation, Ordering of Words, Ordering of Sentences, Verbal Analogies, Sentence Formation, Completing Statements, Change of Speech.
4. Data Interpretation: Pie Chart, Bar Chart, Line Chart, Table Chart,
5. General Knowledge - Indian History, Indian Economy, Indian Culture, Environmental Science, Awards And Honors, Famous Places In India, World Organization, Sports, Books And Authors, Famous Personalities, Days And Years, Indian and World Geography, Indian Politics, General Sciences, and Current Affairs
6. Computer Fundamentals - Operating System, MS Office, Internet based operations and Database management



## **Part-B**

### **Network Administration**

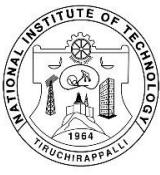
Basics of Networking, Network Devices (Router, Switch, Access Point, etc), IP Addressing (IPv4, IPv6, Classes, Subnetting), MAC, TCP, UDP, HTTP, HTTPS, FTP, SMTP, DNS, DHCP, VLANs, DHCP Snooping, ARP, ICMP, Port Security, LACP, QoS, STP – Spanning Tree Protocol, Access Control Lists (ACL), Wireless Networking (Wi-Fi standards), Network Troubleshooting Tools (ping, tracert, ipconfig, etc), Network Management Systems (NMS), Bandwidth Monitoring, Network Redundancy, Centralized Syslog, Network Interface Standards and Various Types of Transceivers, FTTH (OLT, ONT, PON, GPON, Splitters, Optical Power Levels, Fiber Types, Connectors, Splicing, and Profile Configurations), and Passive Networking Components (Copper and Fiber - UTP/STP cables, RJ45 connectors, Patch panels, Fiber cables, Connectors (SC, LC), Patch cords, LIU, etc.).

### **Firewall / UTM Administration**

Basics of Firewall, Types of Firewalls (Packet Filtering, Stateful Inspection, Proxy Firewall, Next-Generation Firewall), Firewall Rules and Policies, Access Control Lists (ACL), Network Address Translation (NAT), Ports and Protocols, Firewall Zones (including DMZ), VPN (Virtual Private Network), Intrusion Detection and Prevention Systems (IDS/IPS), Logging and Monitoring, Firewall Configuration and Management, Security Policies and Best Practices, Troubleshooting of Firewall Issues, Open Source Firewalls, Deep Packet Inspection (DPI), High Availability (HA), Firewall Throughput and Performance, Failover and Load Balancing, Firewall Selection Based on Requirements, Unified Threat Management (UTM), Web/URL Filtering and Geo-blocking.

### **Windows Server Administration**

Basics of Windows Server, Installation and Configuration, Active Directory, User and Group Creation and Management, Group Policy (GPO), File System and Storage, File and Folder Permissions, DNS (Domain Name System), DHCP, Server Roles and Features (including Internet Information Services – IIS), Virtualization (Hyper-V), Backup and Recovery, Windows Licensing and Activation (including Key Management Service – KMS), Windows Deployment Services (WDS), Remote Desktop Services (RDS), Windows Server Update Services (WSUS), Print Services, Disk Management, Network Policy Server (NPS), Certificate Services (AD CS), Windows Firewall with Advanced Security, Task Scheduler, Server Manager, System Tools (including Resource Monitor,



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Performance Monitor, Device Manager, Event Viewer), PowerShell scripting, Windows Admin Center, and Containers and NIC Teaming.

### **Server Hardware**

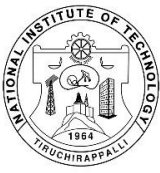
Basics of Server Hardware, Types of Servers (Tower, Rack, Blade), Server Components (CPU, RAM, Motherboard, etc), Storage Devices (HDD, SSD, etc), Power Supply and Redundancy, RAID Concepts, Network Interface Cards (NIC), Server Chassis and Form Factors, BIOS/UEFI Configuration, Hardware Virtualization Support, Peripheral Devices, Hardware Monitoring and Diagnostics, Server Maintenance and Troubleshooting, Remote Management Technologies (iDRAC, iLO, etc.), Firmware Updates, Hot-swappable Components, RAID Controller / HBA (Host Bus Adapter), ECC Memory, Trusted Platform Module (TPM), KVM, and Rack Infrastructure (including Rails, Cable Management, and Power Distribution Units – PDU), and Data Center Power Backup (Rack UPS, Power Redundancy, etc).

### **Computer Hardware**

Basics of Computer Hardware, Types of CPUs, RAM, ROM, Cache Memory, Buffer Memory, Virtual Memory, BIOS and UEFI, Motherboard types, chipsets, expansion slots, and other components, Switch Mode Power Supplies (SMPS), Hard Drives and their functioning, Interface types (IDE/PATA, SATA, SCSI, SSD), Removable Media, Optical Drives (CD/DVD/Blu-ray), Display technologies and interfaces (LED, LCD, VGA, DVI, HDMI), GPU (Graphics Processing Unit), Ports and Connectors (USB, Ethernet, Audio ports), Multimedia components, Portable Computing devices, Mobile Devices, Printers and their types, Input and Output Devices, Basic Troubleshooting, and Hardware Maintenance.

### **CCTV Surveillance System**

Basics of CCTV Systems, Types of Cameras (Analog, IP, Dome, Bullet, PTZ), Camera Components and Lenses, Resolution and Image Quality, Video Standards (NTSC, PAL), Digital Video Recorders (DVR) and Network Video Recorders (NVR), Storage Systems and Hard Disks, Cabling (Coaxial, UTP, Fiber), Connectors (BNC, RJ45), Power Supply for CCTV (including PoE), Camera Placement and Coverage, Night Vision and Infrared (IR), Motion Detection, Frame Rate (FPS) and Bitrate, Bandwidth and Storage Calculation, Remote Monitoring, Networking in CCTV (IP addressing, ports), Video Compression Techniques (H.264, H.265), Video Management Software (VMS), ONVIF Standard, Mobile Viewing and Applications, Alarm and Event Management,



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Cloud Storage and Backup, CCTV Installation and Configuration, Maintenance and Troubleshooting, and CCTV Security and Best Practices.

## **Operating System Administration**

Windows System administration, OS installation methods, Safe Mode, Safe Mode Boot options, Last Known Good Configuration etc., Windows Diagnostic Tools, System Restore, Creating Restore point, restore using Restore point, etc., Windows Recovery tools and methods. Linux Operating System. Difference between Windows and Linux OS, Installation of Linux OS, Boot Loaders, Kernel, Linux Administration Basics Installation of various Packages in Linux, Linux Networking, Configuration of basic networking services in Linux, Print Sharing SAMBA services, Upgradation and Patch Management in Linux.

## **Fundamentals of Web**

Internet and World Wide Web (WWW), Web Browsers and Web Servers, URLs, MIME types, HTTP/HTTPS protocols, HTML (basic structure, tags, forms, tables, lists), XML, PHP, Form Controls and validation, Cascading Style Sheets (CSS) including inline, embedded and external stylesheets, CSS selectors and properties, Box model, Responsive design basics, Building CSS menus, Creating user style sheets, JavaScript basics for client-side scripting, and Server-side and Client-side scripting concepts.