Indicative Syllabus for written test and selection criteria for recruitment to the post of Technical officer (ICT), Pay level 10 (Advt. No NITM.1/(2C-Estt)/MP/R-N/2022/R-903, dated 11th March 2025)	
Paper I	**Paper II**
a) **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. b) **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 c) **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	a) **Digitalization:** Web Technology: Fundamentals of Web - Internet, WWW, Web Browsers, and Web Servers, URLs, MIME, HTTP, HTML tags, XML, PHP, Form controls, Cascading Style sheets, inline, embedded and external style sheets, Building CSS menu, Creating user style sheets, Server side and client-side scripting. **Data Management**: Database system, Relational databases Database system, ER-Diagram Constraints, ER-Diagrams, Logical view of data, keys, integrity rules. Normalization, Database administration. Relational algebra: Selection and projection, set operations, renaming, Joins, Division, syntax, semantics. Operators, grouping and ungrouping, relational comparison. Constraints, Views and SQL (MySQL/ PostgreSQL): data definition, aggregate function, Null Values, nested sub queries, Joined relations. Data Analytics- Data Visualization-Principles of Artificial Intelligence & Machine Learning. **Programming**: Programming in Java/Python/C language/bash/shell scripting. **Application Development**: Full stack development, Web Application Development & Deployment (XAMPP – LAMPP) High Performance Computing: CPU and GPU based programming, Schedulers, Cluster management suits, Server monitoring tools, Private cloud maintenance. b) **Networking**: **Network:** Topologies, Types of Networks and Internet, Media Types, Network Equipment Types and functions, Hubs, Switches, Routers, Modems, Transceivers, Firewalls, Wireless Controllers, Access Points. TCP/IP, LAN, Ethernet, Wi-Fi, Bluetooth, Mobile Networking. Configuring Router/Switch/Firewall. **Protocols**: ARP, EIGRP, TCP, UDP, HTTP, FTP, SSH, DNS, DHCP, NTP, RADIUS, VPN, SSL, SDN, etc **Information and Network Security**: Security attributes, mechanisms and attacks. Access Control and Authentication, Basics of Cryptography, Digital Signatures and Certificates. mitigating attacks. Web Denial of Service Attacks and Mitigation. Firewalls, configuration and hardening. **Ethical Hacking**: System reconnaissance tools, Website enumeration tools, Port Scanning tools.

d) **Interpretation:** Pie Chart, Bar Chart, Line Chart, Table Chart, e) **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 **f) Computer Fundamentals** - Operating System, MS Office, Internet based operations and Database management	**Web-hosting**: Web server and maintenance, Proxy Configuration (SQUID or other software), Reverse proxy, Web Security. c) **Trouble Shooting**: **Operating Systems**: System administration, Windows and Linux OS installation procedures, Dual boot, Safe Mode & Boot options, Windows Diagnostic Tools, System Restore, Creating restore point, restore using Restore point, Recovery tools and methods, Backup/Recovery and Restore procedures in windows and LINUX operating systems. Boot Loaders, Kernel. Shells, utilities etc., 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. System maintenance, troubleshooting issues related to OS, device drivers – Installing packages through apt, get install & using GUI. Data center: Server configuration, Storage -RAID, Distributed OS installation **Software Tools**: Version control, Installation and management of open-source software and services, Virtualization, Hypervisor and containers, Software tools for troubleshooting. d) **Automation** **Electronic Components:** Digital Electronic Circuits (Combinational logic circuits, minimization of Boolean functions, Adders, Multiplexers, Encoders, Decoders, Comparators, Sequential circuits, Latches, Flip-flops, Registers, Counters, IC families: TTL logic and CMOS logic, sample-and-hold circuit, analog-to digital converters and digital-to analog converters), Analog Electronics (Small signal analysis of transistor circuits, feedback amplifiers, Characteristics of operational amplifiers, Applications of op-amps (difference amplifier, adder, subtractor, integrator, differentiator), instrumentation amplifier, precision rectifier, active filters), Oscillators, Integrated Circuits, **Internet of Things**: Hardware & Software components of IoT, IoT communication and networking protocols, Micro-Controllers (Arduino uno/mega2560, Rasberry-Pi,ARM), Real-time systems and embedded software. **Automation**: Automation frameworks and tools, Programming and Scripting for automation (Python, Bash, Powershell), Applications of Programmable Logic Controllers.

Post Name: Technical Officer (ICT)– Scheme of Examination, Selection criteria and Instructions		
Scheme of Examination	**Selection Criteria**	**Instructions**
Paper –I: General Paper Questions: 50 Marks: 50 Duration: 1 hour Paper II : Post related paper Marks: 100 Duration: 02 hours	a) Candidates fulfilling the minimum eligibility criteria will be considered provisionally eligible to appear for Paper-I and Paper II written examinations. b) Paper I is qualifying in nature for evaluation of Paper II. c) Minimum qualifying marks for paper-I is 25 marks and for Paper II is 50 marks. d) Candidates, who qualify in Paper-II will be shortlisted for personal interview. e) Final merit list is prepared based on the performance of the Interview. **f)** Success in the examination confers no right of appointment unless the Institute is satisfied after conducting enquiry that the candidate is suitable in all respects of appointment to the service/post	• Paper I consists of 50 multiple choice questions. • Paper II consist of two parts, part A and Part B. Part A is having 50 multiple choice questions for 50 marks and Part-B is of descriptive type for 50 marks with either short or long answers type questions. Short answers type questions may be answered in brief to the point. Long answer type questions will elaborations/explanations with examples etc. • One (1) mark will be awarded for each correct answer and minus one fourth (-1/4) mark awarded for the each incorrect answer for multiple choice questions in both papers. • The unanswered questions will not attract negative marks. • Compensatory time for persons with Benchmark Disabilities (Divyangjan) will be provided as per the extant orders of Government of India.