



RECRUITMENT CELL

NATIONAL INSTITUTE OF TECHNOLOGY TIRUCHIRAPPALLI – 620 015.

Recruitment of Non-Teaching Positions

Syllabus for written test for Group A positions

POST : **Assistant Librarian**

[Advt.No. : Advt.No. NITT/R/RC/NT/2024/01 and NITT/R/RC/NT/2024/02]

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

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 based on their performance in Stage - I	—	50

- 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.**

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

1. Information & Communication

Data, Information, Knowledge and Wisdom, Information Life Cycle - Generation, Collection, Storage and Dissemination, Role of Information in Planning, Management, Socio-economic, Cultural, Educational and Technological Development. Information Science - Relationship with other subjects, Information Society and Knowledge Society. Communication – Concept, Types, Theories, Models, Channels and Barriers; Trends in Scholarly Communication. Information Industry - Generators, Providers and Intermediaries IPR and Legal Issues - Categories, Conventions, Treaties, Laws. Plagiarism: Concept and Types, Right to Information Act (RTI); Information Technology Act. National Knowledge Commission; National Mission on Libraries.

2. Librarianship, History & Society

Library and Information Science Education in India. . Type of Users - User Studies, User Education. Information Literacy - Areas, Standards, Types and Models; Trends in Information Literacy. Historical Development of Libraries in India; Committees and Commissions on Libraries in India. Types of Libraries – Academic, Public, Special and National. Library Legislation and Library Acts in Indian States; The Press and Registration of Books Act; The Delivery of Books and Newspapers (Public Libraries) Act. Normative Principles of Lib. & Inf. Science. Laws of Library Science. Library and Information Science Profession - Librarianship as a Profession, Professional Skills and Competences; Professional Ethics. Professional Associations - National – ILA, IASLIC, IATLIS; International – IFLA, ALA, CILIP, ASLIB, SLA; Role of UGC, RRRLF and UNESCO in Promotion and Development of Libraries. Library Public Relations and Extension Activities.

3. Information Sources

Nature, Characteristics, Types and Formats. Sources of Information - Primary, Secondary and Tertiary; Documentary and Non-Documentary. Reference Sources - Bibliographical, Biographical, Educational, Language and Geographical. Electronic Information Resources - Subject Gateways, Web Portals, Bulletin Boards, Discussion Forums /Groups. Databases: Bibliographic, Numeric, Full text, Multimedia; Open Access Databases. Institutional and Human Resources. Evaluation of Reference Sources and Web Resources.

4. Information Systems & Services

Community Information Services, Reference Service – Concept and Types; Referral Services, Alerting Services - CAS, SDI, Inter Library Loan and Document Delivery. Mobile based Library Services and Tools – Mobile OPAC, Mobile Databases, Mobile Library Website, Library Apps, Mobile Library Instructions, Augmented Reality, SMS Alerts, Geo-Location, Reference Enquiry. Web 2.0 and 3.0 - Library 2.0- Concept, Characteristics, Components; Instant Messaging, RSS Feeds, Podcasts, Vodcasts, Ask a Librarian Collaborative Services- Social Networks, Academics Social Networks, Social Tagging, Social Bookmarking. Web – Scale Discovery Services, Library Co-operation Resource Sharing and Library Networking. National Information Systems and Networks: NISCAIR, DESIDOC, ENVIS, INFLIBNET, DELNET, NICNET, ERNET, National Knowledge Network (NKN), Biotechnology Information System Network, International Information Systems and Networks: INIS, AGRIS, INSPEC, MEDLARS, BIOSIS, ERIC, Patent Information System (PIS), Biotechnology Information System (BIS). Library Resource Sharing and Library Consortia – National and International.

5. Knowledge Organization & Information Retrieval

Knowledge Organisation - Classification – Theories, Canons, and Principles; Simple Knowledge Organisation System (SKOS), Taxonomies, Folksonomy, Trends in Classification. Mapping of Subjects in Library Classification Schemes. Cataloguing. Standards of Bibliographic Record Formats and Description – ISBD, MARC 21, CCF, RDA, FRBR, Bibframe. Standards for Bibliographic Information Interchange & Communication – ISO 2709, Z39.50, Z39.71. Metadata Standards: Dublin Core; MARC21, METS, MODES, EAD. Indexing Systems and Techniques. Abstracting – Types and Guidelines. Information Retrieval System – Features, Components, Models and Evaluation.

6. Library Management

Management - Principles, Functions and Schools of thought. Library and Information Centers. Management - Book Selection Tools and Principles; Library Acquisition, Technical Processing, Circulation, Serial Control, Maintenance and Stock Verification; Preservation and Conservation; Hazards and Control Measures of Library Materials. Human Resource Management. Financial Management in Libraries. Project Management - SWOT, PEST, PERT / CPM. Total Quality Management (TQM) - Six Sigma; Evaluation of Services of Libraries

and Information Centers. Library Building, Green Library Building. Management Information System (MIS), MBO, Change Management, Disaster Management, Crisis Management. Knowledge Management. Marketing of Library Products and Services.

7. Information & Communication Technology

Computer Technology - Character Representation (ASCII, ISCII, Unicode); Computer Hardware, Software; Storage Devices; Input and Output Devices. Types of Software - System Software, Application Software. Programming Languages – Object Oriented, Procedural, High Level, Scripting; Web Languages. Telecommunication, Standards and Protocols. Wireless Communication. Computer Networks. Internet. Internet Protocols and Standards. Virtual Reality, Augmented Technologies. Data Security, Network Security & Firewalls

8. Library Automation

Library Automation. Barcode, RFID, QR Code, Biometric, Smartcard. Digitization, Digital Library. Protocols, DOI. Digital Preservation. Institutional Repositories. Content Management Systems. Application of Artificial Intelligence, Expert Systems and Robotics in Libraries, Cloud Computing. Ontology – Tools (RDF, RDFS, Potege) Semantic Web, Linked Data, Big Data, Data Mining, Data Harvesting.

9. Research Methodology

Research Methods, Research Design, Methods of Data Collection Scales and Checklist. Data Analysis and Interpretation, Statistical Packages Research Report Writing and Citation Tools – Structure, Style, Contents, Guidelines; Style Manuals; Online Citation Tools; Reference Style Management Tools; Antiplagiarism Tools; Evaluation of Research Report. Metric Studies in LIS - Bibliometrics, Scientometrics, Webometrics, Altmetrics; Impact Factors – Journal, Institutional and Authors; h-Index, g-Index, i10 Index. Trends in Library and Information Science Research.

POST : Technical Officer

[Advt.No. : Advt.No. NITT/R/RC/NT/2024/02]

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Stage - I	Multiple Choice Questions based Written Test with 30% weightage to Part A and 70% weightage to Part B	90 minutes	100
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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

1. 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.

2. Networking:

Network: Topologies, Types of Networks and Internet, Media Types, Network Equipments 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.

Web-hosting: Web server and maintenance, Proxy Configuration (SQUID or other software), Reverse proxy, Web Security.

3. 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.

4. 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, Raspberry-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 : Assistant Registrar

[Advt.No. : Advt.No. NITT/R/RC/NT/2024/01 and NITT/R/RC/NT/2024/02]

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12. **Computer Fundamentals** - Operating System, MS Office, Internet based operations and Database management

PART B

1. **Administrative Management:** Fundamental Rules and Supplementary Rules, CCS (Leave) Rules, CCS (Joining Time) Rules, CCS (Pension) Rules, New Pension Scheme, CCS (CCA) Rules, CCS (Conduct Rule), Office procedure, Prohibition of sexual harassment of working women, Right to Information, Rules pertaining general conditions of service viz., Deputation, Lien, Travelling Allowance, Advances, LTC, Medical Attendance, CGHS etc.,
2. **Matters related to Academics:** Grade Point System, Technical Education in India - its governance, Policy and Administration, Examination regulations, Accreditation, Admission Procedure, National Education Policy 2020 etc.. Academic administration and Hostel Administration (from 3)
3. **NIT Act & Statutes:** NITSER Act and Statutes of NIT, Authorities and Officers of the Institute, Functions of Board of Governors (BoG), Finance Committee, Building and Works Committee, Senate, NIT council, Powers of the Institute, Authorities of the Institute (and their Roles and responsibilities), Code of conduct for permanent employees, resignation & retirement, Recruitment rules, etc
4. **Financial Management)/ Public procurement** General Financial Rules 2017, Procurement of goods and services, Rate Contract, GEM purchase procedures, Inventory management, contract management, etc

Role of DDO, Income tax rules, GST rules, , Accounts & Audit of autonomous bodies, C&AG etc, balance sheet, trial balance, ledgers and posting, bank reconciliation statement, receipt & Payments, preparation of budget and its allocation, GPF rules, Pension rules, New Pension Scheme, knowledge of tally, etc..