

**TUMKUR UNIVERSITY**  
**Department of Studies and Research in**  
**Library and Information Science**  
**Syllabus for Ph.D. Entrance Test**

**Part A: Research methodology**

Unit-1	<ol style="list-style-type: none"><li>1. Research - Concept, Purpose, Functions, Scope and Ethics; Types of Research - Basic and Applied, Interdisciplinary and Multidisciplinary.</li><li>2. Research Methods: Survey, Historical, Descriptive, Experimental and Delphi.</li><li>3. Research Design - Selection of Research Problem, Review of Literature; Formulation of Research Problem; Hypothesis - Formulation, Types and Testing; Sampling Techniques, Sampling Errors</li><li>4. Methods of Data Collection: Questionnaire, Interview, Observation, Library Records, Scales and Checklists.</li></ol>
Unit-2	<ol style="list-style-type: none"><li>1. Data Analysis and Interpretation - Presentation of Data; Statistical Methods/ Techniques - descriptive statistics and inferential statistics</li><li>2. Data visualisation - charts and graphs - line, bar, pie, column; infographics</li><li>3. Statistical Packages - Spreadsheets, SPSS, Bibexcel, R Statistical analysis software.</li><li>4. Research Report Writing and Citation Tools - Structure, Style, Contents, Guidelines; Style Manuals - APA, MLA; Online Citation Tools; Reference Style Management Tools; Plagiarism Detection Tools; Evaluation of Research Report.</li></ol>
Unit-3	<ol style="list-style-type: none"><li>1. Metrics: Bibliometrics, Scientometrics, Webometrics and Altmetrics.</li><li>2. Research Impact metrics - Journal, Institutional and Authors; h-Index, g-Index, i10 Index.</li><li>3. Ethics in Research, Scientific misconduct: falsification, fabrication, and Plagiarism. Redundant Publication, Predatory Journals.</li><li>4. Publication Ethics and Violation of Publication Ethics, Committee on Publication Ethics (COPE).</li></ol>



## Part B: Cognate Subject

Unit-4	<ol style="list-style-type: none"><li>1. Historical Development of Libraries in India; Committees and Commissions on Libraries in India.</li><li>2. Types of Libraries - Academic, Public, Special and National.</li><li>3. Library Legislation and Library Acts in Indian States; The Press and Registration of Books Act; The Delivery of Books and Newspapers (Public Libraries) Act.</li><li>4. Laws of Library Science and their implications.</li><li>5. Data, Information, Knowledge and Wisdom.</li><li>6. Information Life Cycle - Generation, Collection, Storage and Dissemination.</li><li>7. Library and Information Science Profession - Librarianship as a Profession, Professional Skills and Competences; Professional Ethics.</li><li>8. Professional Associations - National - ILA, IASLIC, IATLIS; International - IFLA, ALA, CILIP, ASLIB, SLA; Role of UGC, RRRLF and UNESCO in Promotion and Development of Libraries.</li><li>9. Library and Information Science Education in India.</li><li>10. Library Public Relations and Extension Activities, Type of Users - User Studies, User Education. Information Literacy - Areas, Standards, Types and Models; Trends in Information Literacy</li></ol>
Unit-5	<ol style="list-style-type: none"><li>1. Information Sources - Nature, Characteristics, Types and Formats.</li><li>2. Sources of Information - Primary, Secondary and Tertiary; Documentary and Non-Documentary.</li><li>3. Primary Information Sources (Print and Electronic) - Journals, Conference Proceedings, Patents, Standards, Theses &amp; Dissertations, Trade Literature.</li><li>4. Secondary Information Sources (Print and Electronic) - Dictionaries, Encyclopedias, Bibliographies, Indexing &amp; Abstracting, Statistical sources, Handbooks and Manuals.</li></ol>

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	<ol style="list-style-type: none"> <li>5. Tertiary Information Sources (Print and Electronic)- Directories, Year Books, Almanacs.</li> <li>6. Reference Sources - Bibliographical, Biographical, Educational, Language and Geographical.</li> <li>7. Electronic Information Resources - Subject Gateways, Web Portals, Bulletin Boards, Discussion Forums /Groups.</li> <li>8. Databases: Bibliographic, Numeric, Full text, Multimedia; Open Access Databases.</li> <li>9. Institutional and Human Resources.</li> <li>10. Evaluation of Reference Sources and Web Resources.</li> </ol>
Unit-6	<ol style="list-style-type: none"> <li>1. Community Information Services.</li> <li>2. Reference Service - Concept and Types; Referral Services</li> <li>3. Alerting Services - CAS, SDI, Inter Library Loan and Document Delivery.</li> <li>4. 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.</li> <li>5. Web 2.0 and 3.0 - Library 2.0- Concept, Characteristics, Components; Instant Messaging, RSS Feeds, Podcasts, Vodcasts, Ask a Librarian</li> <li>6. Collaborative Services- Social Networks, Academics Social Networks, Social Tagging, Social Bookmarking.</li> <li>7. Web - Scale Discovery Services</li> <li>8. National Information Systems and Networks: NIScPR, DESIDOC, SENDOC, , INFLIBNET, DELNET, NICNET, ERNET, National Knowledge Network (NKN), Biotechnology Information System (BIS), Patent Information System (PIS),</li> <li>9. International Information Systems and Networks: INIS, AGRIS, INSPEC, MEDLARS, BIOSIS, ERIC.,</li> <li>10. Library Resource Sharing and Library Consortia - National - eShodhSindhu, NKRC, DeLCON, ONOS; International consortia programmes.</li> </ol>




Unit-7	<ol style="list-style-type: none"> <li>1. Universe of Knowledge - Nature and Attributes; Modes of Formation of Subjects.</li> <li>2. Knowledge Organisation - Classification – Theories, Canons, and Principles; Simple Knowledge Organisation System (SKOS), Taxonomies, Folksonomy, Trends in Classification.</li> <li>3. Mapping of Subjects in Library Classification Schemes - DDC, UDC and CC.</li> <li>4. Knowledge Organisation: Cataloguing - Canons and Principles; Centralized and Co-operative Catalogue; Library Cataloguing Codes: CCC and AACR - II.</li> <li>5. Standards of Bibliographic Record - Formats and Description - ISBD, MARC21, CCF, RDA, FRBR, Bibframe.</li> <li>6. Standards for Bibliographic Information Interchange &amp; Communication - ISO 2709, Z39.50, Z39.71.</li> <li>7. Metadata Standards: Dublincore; MARC21, METS, MODS, EAD, VRA Core, TEI.</li> <li>8. Indexing Systems and Techniques: Assigned - Pre-coordinate; Post-Coordinate; Derived- Title-based; Vocabulary Control.</li> <li>9. Abstracting - Types and Guidelines.</li> <li>10. Information Retrieval System - Features, Components, Models and Evaluation.</li> </ol>
Unit-8	<ol style="list-style-type: none"> <li>1. Management - Principles, Functions and Schools of Thought.</li> <li>2. Library and Information Centre 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.</li> <li>3. Human Resource Management - Planning, Job Analysis, Job Description, Job Evaluation, Selection, Recruitment, Motivation, Training and Development, Performance Appraisal, Staff Manual.</li> <li>4. Financial Management in Libraries - Sources of Finance, Resource Mobilisation, Budgeting Methods; Cost-Effective and</li> </ol>

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	<p>Cost-Benefit Analysis, Annual Reports &amp; Statistics; Library Authority and Committee.</p> <ol style="list-style-type: none"> <li>5. Project Management - SWOT, PEST, PERT / CPM.</li> <li>6. Total Quality Management (TQM) - Concepts, Principles and Techniques, Six Sigma; Evaluation of Services of Libraries and Information Centers.</li> <li>7. Library Building, Furniture and Equipment; Green Library Building; Information Commons; Makerspaces; Security and Safety.</li> <li>8. Management Information System (MIS), MBO, Change Management, Disaster Management, Crisis Management.</li> <li>9. Knowledge Management - Principles, Tools, Components and Architecture.</li> <li>10. Marketing of Library Products and Services - Plan, Research, Strategies, Mix, Segmentation, Pricing and Advertising; Management Consultancy.</li> </ol>
Unit-9	<ol style="list-style-type: none"> <li>1. Computer Technology - Character Representation (ASCII, ISCII, Unicode); Number systems - binary, decimal, octal, hexadecimal; Computer Hardware, Software; Storage Devices; Input and Output Devices.</li> <li>2. Types of Software - System Software: operating systems, device drivers, utility software; Application Software.</li> <li>3. Programming Languages - Object Oriented, Procedural, High Level, Scripting; Web Languages.</li> <li>4. Telecommunication - Transmission Channels, Mode, and Media, ISDN, PSDN, Multiplexing, Modulation, Standards and Protocols.</li> <li>5. Wireless Communication - Media, Wi-fi, Li-fi, Satellite Communication, Mobile Communication.</li> <li>6. Computer Networks - Topologies, Types of Networks - LAN, MAN, WAN.</li> <li>7. Internet - Web browsers, E-mail; Search Engines, Meta and Entity Search engines.</li> <li>8. Internet Protocols and Standards - HTTP, SHTTP, FTP, SMTP, TCP/IP.</li> </ol>

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	<p>9. Hypertext, Hypermedia, Multimedia, Video conferencing, Virtual Reality, Augmented Technologies.</p> <p>10. Cybercrimes and Data Security, Network Security, Firewalls, Cryptographic Techniques, Anti-virus software, Anti-spyware, Intrusion Detection System.</p>
Unit-10	<p>1. Library Automation - Areas, Planning, Selection of Hardware and Software, Implementation and Evaluation; Standards for Library Automation.</p> <p>2. Barcode, RFID, QR Code, Biometric, Smartcard: Features and Applications.</p> <p>3. Digitisation - Planning, Selection of Materials, Hardware, Software, Process, Issues.</p> <p>4. Digital Library: Genesis, Characteristics, Types, Architecture; Standards, Formats and Protocols, DOI.</p> <p>5. Digital Preservation - Need, Purpose, Standards, Methods, Techniques, Projects (National and International).</p> <p>6. Digital Library Initiatives - National and International.</p> <p>7. Institutional Repositories - Need, Purpose, Types and Tools; Institutional Repositories in India; ROAR, OpenDOAR, Sherpa Romeo.</p> <p>8. Content Management Systems - Architecture, Data Integration, CMS Software - Selection, Implementation and Evaluation. Open Source content management systems.</p> <p>9. Application of Artificial Intelligence, Expert Systems and Robotics in Libraries; Social Mobile Analytics Cloud (SMAC); Cloud Computing. Internet of Things (IoT). Artificial Intelligence (AI) Tools - Large Language Models (LLMs), applications of AI tools in research, library and information services.</p> <p>10. Ontology - Tools (RDF, RDFS, Protégé); Semantic Web, Linked Data, Big Data, Data Mining, Data Harvesting.</p>

  
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