

# UNIVERSITY OF JAMMU

## Notification

### Syllabus for Entrance/Screening Test for the post of Semi- Professional Assistant

#### Pattern of Examination

*The entrance test will be of 80 marks*

	<b>Examination Type</b>	<b>Sections/Units</b>	<b>Number of Questions (All Questions are Compulsory)</b>	<b>Marks</b>	<b>Time Duration</b>
<b>Part 1.</b>	<b>Entrance Test*</b>	<b>Section A:</b> <i>General Aptitude</i>	<b>25 Question:</b> <i>(15 question from Unit – I) (10 questions from Unit-II)</i>	<b>25 Marks</b> <i>( 1 Mark for each question)</i>	<b>2 hrs</b>
		<b>Section B:</b> <i>Domain Knowledge</i>	<b>55 Question:</b> <i>(11questions from each unit; covering all the subunits proportionately)</i>	<b>55 Marks</b> <i>(1 Mark for each question)</i>	

*\*Each Section will consist of Multiple –Choice Questions covering the entire syllabus uniformly.*

#### Section – A: General Aptitude

##### Unit 1: General Intelligence

Questions shall be both verbal and non-verbal types. The test may include questions on Analogies, Similarities, Differences, Space Visualization, Problem Solving, Observation, Statement-Arguments, Statements-Assumptions, Arithmetical reason, Assertion and Reasoning, Arithmetical Number Series, Coding & Decoding, Blood Relations.

##### Unit2: General Awareness

Questions shall aim at testing the candidate's awareness of current and the environment around him/her besides testing the knowledge of Everyday Science, Sports, Indian Culture, Indian History, Indian Geography, Economics, Indian Polity, and Indian Constitution.

#### Section –B: Domain Knowledge

##### Unit1: Foundations of Library and Information Science

**1.1 Information, Communication, Library, and Society:** Data, Information and Knowledge, Communication: Channels, Barriers. Library: Role and Functions in Society, Information & Knowledge Society.

- 1.2 Historical Development of Libraries:** Historical development of Libraries in India.
- 1.3 Types of Libraries:** Academic Libraries: School, College, and University Libraries, National, Public, and Special Libraries.
- 1.4 Library Laws and Acts:** Five laws of Library Science, Library Legislation, State Library Acts in India, Delivery of Books and News Papers Act, Intellectual Property Rights, Copyright Act, Library Information Policy with Special Reference to India.
- 1.5 Professional Associations of Library and Information Science:** ILA, IASLIC, IATLIS, ALA, RRRLF and UGC, UNESCO and IFLA.
- 1.6 Extension Services:** Policies, Branches, Outreach Methods – Resource Sharing, Interlibrary Loan, Library Extension Activities, extension counters, mobile libraries, display and exhibitions, extension lectures, discussion groups, cultural and other activities.

Unit 2: Knowledge Organization

- 2.1 Library Classification:** Need and Functions of Library Classification, Modes of formation of Subjects, Species of Library Classification, Notation, Class Number, Book Number, Collection Number.
- 2.2 Library Classification Schemes:** History and Development of Library Classification Schemes, Structure and Features of Dewey Decimal Classification (DDC), Colon Classification (CC), Universal Decimal Classification (UDC), Comparison between DDC, UDC and CC, Canons of Classification.
- 2.3 Library Cataloguing:** Need and Functions of Library Cataloguing, Physical Forms of Catalogue- Card Catalogue, Book Catalogue, Shelf Catalogue, Dictionary Catalogue and Classified Catalogue, Cooperative, Centralized Cataloguing and Union Catalogue, Sear's List of Subject Headings (SLSH), Chain Procedure.
- 2.4 Catalogue code:** Historical overview of different codes, canons of cataloguing. AACR-1, AACR-2, AACR2R, CCC and their revisions.
- 2.5 Cataloguing Standards and Online Cataloguing:** ISBD, ISBN, ISSN, MARC, OPAC, Web-OPAC
- 2.6 Vocabulary Control:** Sears List of Subject Headings, Library of Congress Subject Headings, Medical Subject Headings (MeSH). Thesaurus, Ranganathan's Chain Procedure.

Unit 3: Library Management

- 3.1 Schools of Management:** and overview (Classical, Neoclassical, Scientific, Systems), Functions and Principles of Management.
- 3.2 Human Resource Management:** Library Staff Qualities and Duties, Job Satisfaction, Recruitment, Training and Development, Leadership Theories, Theories of Motivation, Ethics of Librarianship and Skill developments, Library Authority and Library Committee.
- 3.3 Technical Services:** Acquisition: Collection Development Tools and Principles, - Selection Criteria of Books, Non-Book, Non-Print, Digital Methods of Acquisition (Traditional, Online), Accessioning, Technical Processing of Serials Policies, Selection Criteria, Methods of Subscription and Procurement, Circulation Services Policies, Functions, Charging and Discharging Systems, Stock Verification: Methods and Tools.
- 3.4 Storage and Maintenance:** Preservation, Binding, Care and Preservation of Book and Non-Book Materials, Electronic Storage, Record Maintenance, Library Rules and Regulations
- 3.5 Financial Management:** Resources Mobilization, Sources of Finance, Budget, Budgeting Methods and Techniques.

**3.6 Marketing of Library Services:** Need, Policies, Methods, Annual Reports, Publicity, Public Relations, Library Promotion Programmes, Library Guides.

Unit 4: Reference and Documentation Services

- 4.1 Reference Librarian and Users Education:** Role, Qualifications, Qualities and Competencies, Methods and Techniques of User Studies, Library Orientation
- 4.2 Information Services:** Types of Reference Service, CAS and SDI, Abstraction Services, Types of Indexes – Pre and Post Co-ordinate Indexing, Chain Indexing, POPSI, PRECIS, Alphabetical indexing, Key Word Indexing, Types of Abstracts, Online/Digital Reference Service, Techniques of Translation and Reprographic Services.
- 4.3 Type of Information Sources:** Primary, Secondary and Tertiary Sources, Documentary and Non-Documentary Sources.
- 4.4 Evaluation Criteria for Print Sources:** Dictionaries Encyclopedias, Geographical Sources, Biographical and Bibliographical Sources, Statistical Sources, Handbooks, Directories- Institutional and Professional, Biographical Sources, Statistical Sources, Geographical Sources.
- 4.5 Documentation and Information Centers:** OCLC, NISCAIR, DRTC, DESIDOC, NASSDOC, INSDOC, INIS, AGRIS, MEDLARS

Unit 5: Library Automation

- 5.1 Basics of Computer:** Functions, Components, Classification of Computer, Evolution and Generation of Computer Development, Computer Hardware and Peripherals, Multimedia, Hypermedia, World Wide Web.
- 5.2 Networks and Types:** LAN, MAN and WAN, Library and Information Networks DELNET, INFLIBNET, ERNET, NICNET
- 5.3 Automation of Housekeeping Operations and Library Security Technology:** Acquisition, Cataloguing, Circulation, Serials Control, OPAC, Library Management, RFID, Bar-Coding, Smart Card.
- 5.4 Library Software Packages:** Features of WINISIS, KOHA, LIBSYS, SOUL, Greenstone, DSpace.
- 5.5 Digital, Virtual, Electronic and Hybrid Libraries:** Concept, Definition and scope, Recent Developments, Hardware and Software Requirements.
- 5.6 Internet-based Resources and Services:** Basic Services: E-Mail, Browsers, and Search Engines, Portals, Gateways, Electronic Journals, Search Techniques, Web-searching.

  
**REGISTRAR**  


No. Estab./C&R/NTW/24/3391  
Dated: - 03-04-2024

# UNIVERSITY OF JAMMU

## Notification

### Syllabus of Entrance/Screening Test for the Post of Junior Engineers (Civil)

S.No	Examination Type	Subject	No. of Question	Marks	Duration
1	Multiple Choice Questions	General English, General Knowledge, Logical Reasoning, Basic arithmetic, ability etc.	30	30	2hrs
2		Discipline Oriented	70	70	

**General English, General Knowledge, Logical Reasoning, Basic arithmetic, Analytical ability etc. 30 Marks**

#### DISCIPLINE ORIENTED

##### 1. BUILDING MATERIALS: **05 Marks**

Physical and Chemical properties, Classification, Standard Tests, Uses and manufacture/quarrying of materials e.g. building stones, silicate based materials, Cement (Portland), Asbestos products, Timber and Wood based Products, Laminates, bituminous materials, Paints, Varnishes.

##### 2. ESTIMATING, COSTING, AND VALUATION: **05 Marks**

Estimate, Glossary of technical terms, Analysis of rates, Methods, and unit of measurement, Items of work – Earthwork, Brickwork (Modular & Traditional bricks), RCC work, Shuttering, Timber work, Painting, Flooring, Plastering.

Boundary wall, Brick building, Water Tank, Septic tank, Bar bending schedule. Centre line method, Mid-section formula, Trapezoidal formula, Simpson's rule.

The cost estimate of Septic tank, flexible pavements, Tube well, isolated and combined footings. Steel Truss, Piles and piles caps.

Valuation – Value and cost, scrap value, salvage value, assessed value, sinking fund, depreciation and obsolescence, methods of valuation.

##### 3. SURVEYING: **05 Marks**

Principals of surveying, measurement of distance, chain surveying, working of prismatic compass, compass traversing, bearings, local attraction, plane table surveying, theodolite traversing, adjustment of theodolite, Levelling, Definition of terms used in leveling, contouring, curvature and refraction corrections, temporary and permanent adjustments of dumpy level, methods of contouring, uses of contour map, tachometer survey, curve setting, earthwork calculation, advanced surveying equipment.

##### 4. SOIL MECHANICS: **08 Marks**

Origin of soil, phase diagram, Definitions – void ratio, porosity, a degree of saturation, water content, specific gravity of soil grains, unit weights, density index and interrelationship of different parameters, Grain size distribution curves and their uses.

Index properties of soils, Atterberg's limits, ISI soil classification, and plasticity chart. the Permeability of soil, and coefficient of permeability, determination of the coefficient of permeability, Unconfined and confined aquifers, effective stress, quicksand, consolidation of soils, Principles of consolidations, the degree of consolidation, pre – consolidation pressure, normally consolidated soil,  $e - \log p$  curve, computation of ultimate settlement. Shear strength of soils, direct shear test, Vane shear test, Triaxial test. Soil compaction, Laboratory compaction test, Maximum dry density and optimum moisture content, earth pressure theories, active and passive earth pressures, Bearing capacity of soils, plate load test, standard penetration test.

**5. HYDRAULICS:**

**08 Marks**

Fluid properties, hydrostatics, measurements of flow, Bernoulli's theorem and its application, and turbines.

**6. CONSTRUCTION EQUIPMENT, PLANNING AND MANAGEMENT**

**05 Marks**

Weight Batcher, Mixer, vibrator, batching plant, concrete pump. Earthwork Equipment: Power shovel, hoe, dozer, dumper, trailers and tractor, rollers, sheep foot rollers, pumps.

**7. IRRIGATIONS ENGINEERING:**

**05 Marks**

Definition, Necessity, Benefits, III effects of irrigation, types, and methods of irrigation. Hydrology – Measurement of rainfall, runoff coefficient, rain gauge, losses from precipitation – evaporation, infiltration, etc.

Water requirement of crops, duty, delta and base period, Kharif and Rabi Crops, Command area, Time factor, Crop ratio, Overlap allowance, Irrigation efficiencies.

Different type of canals, types of canal irrigation, loss of water in canals. Canal lining – types and advantages.

**8. WATER POWER ENGINEERING:**

**08 Marks**

Power generation through storage (dams) and diversion (barrages); run – of the river schemes with and without pondage;

Storage scheme; tidal power plants; hydroelectric plant layouts for open flow diversion schemes and pressure diversion system or their combination; undergrounds projects with pressure diversion systems;

Reservoir type intakes a trash rack; intakes for embankment dams; water conducting systems a open channels, fore-bays, tunnels, surge tanks, penstocks, valves and anchor blocks;

Layout and sections of tunnels; tunnels deign basics; construction methods for tunnels; penstock components

**9. STRUCTURAL ENGINEERING:**

**08 Marks**

Theory of structures: Elasticity constants, types of beams – determine and indeterminate, bending moment and shear force diagrams of simply supported, cantilever and over hanging beams.

Moment of area and moment of inertia for rectangular & circular sections, bending moment shear stress for a tee, channel and compound sections, chimneys, dams and retaining walls, eccentric loads, slops deflection of simply supported and cantilever beams, critical load and columns, Torsion of circular section.

**10. CONCRETE TECHNOLOGY:**

**05 Marks**

Properties, Advantages, and uses of concrete, cement aggregates, the importance of water quality, water cement ratio, workability, mix design, storage, batching, mixing, placement, compaction, finishing and curing of concrete, quality control of concrete, hot weather and cold weather concreting, repair and maintenance of concrete structures, Roller Compacted concrete and its Use.

**11. RCC DESIGN AND STEEL DESIGN:**

**08 Marks**

Rcc beams – flexural strength, shear strength, bond strength, the design of singly reinforced and doubly reinforced beams, cantilever beams, T – beams, lintels.

One – way and two – way slabs, isolated footings.

Reinforced brickworks, columns, staircases, retaining walls, water tanks (RCC design question may be based on both Limit State and Working Stress methods).

**Steel Design:** Steel design and construction of steel columns, beams roof trusses plate girders

No. Estab./C&R/NTW/24/ **3392**  
Dated: - **03-04-2024**

  
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## Notification

### Syllabus of Entrance/Screening Test for the post of Laboratory Assistant in the Department of Geography

S.No.	Examination Type	Units	No. of Questions	Marks	Duration
1.	Multiple Choice Questions	General English, General Knowledge, Logical Reasoning, Basic arithmetic, Analytical ability etc.	30	30	2Hours
2.		Discipline oriented	70	70	

- I. **General English, General Knowledge, Logical Reasoning, Basic arithmetic, Analytical ability etc.** **30 Marks**
- II. **Geographic Thought and Geography of India** **14 Marks**
- 1.1 Contributions of Greek, Roman, Arab, Chinese and Indian Scholars; Impact of Darwinian Theory on Geographical Thought.
- 1.2 Dualisms in Geographic Studies (physical vs. human, regional vs. systematic, qualitative vs. quantitative, ideographic vs. nomothetic), Paradigm Shift, Perspectives in Geography (Positivism, Behaviouralism and Humanism).
- 1.3 Major Physiographic Regions and their Characteristics; Drainage System (Himalayan and Peninsular), Climate: Seasonal Weather Characteristics, Climatic Divisions, Indian Monsoon (mechanism and characteristics), Jet Streams and Himalayan Cryosphere; Types and Distribution of Natural Resources: Soil, Vegetation, Water, Mineral and Marine Resources.
- 1.4 Population Characteristics (spatial patterns of distribution), Growth and Composition (rural-urban, age, sex, occupational, educational, ethnic and religious) Determinants of Population, Population Policies in India.
- III. **Physical Geography** **14 Marks**
- 2.1 Continental Drift, Plate Tectonics, Endogenetic and Exogenetic forces, Denudation and Weathering, Geomorphic Cycle (Davis and Penck), Theories and Process of Slope Development, Earth Movements (seismicity, folding, faulting and vulcanicity), Landform Occurrence and Causes of Geomorphic Hazards (earthquakes, volcanoes, landslides and avalanches).
- 2.2 Composition and Structure of Atmosphere; Insolation, Heat Budget of Earth, Temperature, Pressure and Winds, Atmospheric Circulation (air-masses, fronts and upper air circulation), cyclones and anticyclones (tropical and temperate).
- 2.3 Relief of Oceans, Composition: Temperature, Density and Salinity, Circulation: Warm and Cold Currents, Waves, Tides, Sea Level Changes, Hazards: Tsunami and Cyclone.
- 2.4 Components: Ecosystem (Geographic Classification) and Human Ecology, Functions: Trophic Levels, Energy Flows, Cycles (geo-chemical, carbon, nitrogen and oxygen), Food Chain, Food

Weband Ecological Pyramid, Human Interaction and Impacts, Environmental Ethics and Deep Ecology, Environmental Hazards and Disasters (Global Warming, Urban Heat Island, Atmospheric Pollution, Water Pollution and Land Degradation).

**IV. Human Geography**

**14 Marks**

- 3.1 World Population Distribution (measures, patterns and determinants), World Population Growth (prehistoric to modern period), Demographic Transition and Theories of Population Growth (Malthus, Sadler, and Ricardo).
- 3.2 Rural Settlements (types, patterns and distribution), Contemporary Problems of Rural Settlements (rural-urban migration; land use changes; land acquisition and transactions), Theories of Origin of Towns (Gordon Childe, Henri Pirenne, Lewis Mumford), Characteristics and Processes of Urbanization in Developed and Developing Countries.
- 3.3 Factors affecting spatial organisation of economic activities (primary, secondary tertiary and quarternary), Natural Resources (classification, distribution and associated problems), Natural Resources Management, World Energy Crises in Developed and Developing Countries.
- 3.4 Boundaries and Frontiers (with special reference to India), Heartland and Rimland Theories. Trends and Developments in Political Geography, Geography of Federalism, Electoral Reforms in India and Determinants of Electoral Behaviour.

**V. Geographical Techniques**

**28 Marks**

- 4.1 Remote Sensing: Meaning, Definition, Significance and Utility; History and Development of Remote Sensing; Aerial Photography and its Geometry; Classification of Aerial Photographs and their Utility and GPS Components (space, ground control and receiver segments) and Applications
- 4.2 GIS- Definition, History and Development; Functions and Advantages of GIS; Concept of DBMS; Sources of Geographic Information and Data (spatial and non-spatial), GIS Database (raster and vector data formats and attribute data formats); GIS Applications (thematic cartography, spatial decision support system).
- 4.3 Applications of Measures of Central Tendency, Dispersion and Inequalities, Sampling, Sampling Procedure, Time Series Analysis, Correlation and Regression Analysis, Measurement of Indices, Making Indicators Scale Free, Computation of Composite Index, Principal Component Analysis and Cluster Analysis.
- 4.4 Cartography- nature, History and Recent Trends; Types of Map, Data and Symbols; Techniques of Map Making (Choropleth, Isarithmic, Dasymetric, Chorochromatic, Flow Maps) Profiles, Slope Analysis, Clinographic Curve, Hypsographic Curve and Altimetric Frequency Graph; Computer Assisted Cartography and Choice of Projections.

No. Estab./C&R/NTW/24/ 3390

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