



भारत सरकार GOVERNMENT OF INDIA  
अंतरिक्ष विभाग DEPARTMENT OF SPACE  
भारतीय अंतरिक्ष अनुसंधान संगठन INDIAN SPACE RESEARCH ORGANISATION  
राष्ट्रीय सुदूर संवेदन केंद्र NATIONAL REMOTE SENSING CENTRE  
बालानगर, हैदराबाद BALANAGAR, HYDERABAD 500 037

No: NRSC-RMT-1-2024/13

### Syllabus for Written Test

Advertisement No	:	NRSC-RMT-1-2024 dated 22.01.2024
Name of the post	:	Scientist/ Engineer 'SC'
Post Code	:	13
Specialization	:	Urban Studies
Essential Qualification	:	M.E / M.Tech in Urban Planning / Regional Planning or equivalent With B.E/ B.Tech in Planning or B.Arch
Number of Posts	:	03

The syllabus for the above posts is given below. Candidates may note that it is not exhaustive but indicative only. Refer above advertisement for pattern of the examination.

#### **Part-A: Area/ Discipline Specific part** (75 Minutes, 60 Marks, 60 Multiple Choice Questions)

##### **Regional and Settlement Planning:**

Settlements-Types, morphology, hierarchy, spatial distribution, ranking; Theories of urbanisation, trends and patterns, policies and strategies; Concept of regional planning, Region & its type, Regional planning process and Plan preparation; Theories of Regional Planning and Development; Concepts and components of planning models; Peri-urban Interaction and development.

##### **Database, maps, plans preparation and analysis:**

Techniques of preparing base maps, Sources of data, Mapping scales, Database preparation techniques, Methods of analysis, Plan preparation techniques, Statistical and quantitative methods, Optimization techniques.

##### **Surveying and Geoinformatics for Planning:**

Types of Surveys, Tools and techniques of Surveys, Fundamentals of surveying, levelling and contouring; Definitions and fundamentals of Photogrammetry, Remote Sensing (RS), Geographical Information system (GIS) and Global Navigation Satellite System (GNSS); Platforms and sensors; Types of resolutions; Qualitative and quantitative elements of aerial photo/ satellite image interpretation; Coordinate systems and projections; Fundamentals of digital image processing; RS for land-use/ land-cover mapping; Spatial data models; Basic spatial analysis in GIS; Digital Elevation Models (DEM) and their derived products; Basic functionalities of RS and GIS software; GIS modelling; Information systems; Decision support system; Geospatial information regulation, statutes and policy guidelines.

##### **Demography and Statistics for Planning:**

Demographic characteristics of population and their measures, Data types and sources, Data collection, Handling data, Sampling, Probability, Theory of estimation, Representation, Analysis.

**Environmental Planning and Design:**

Natural and man-made ecosystems; Environmental & ecological considerations in planning and design; Sustainable urban and regional development strategies; Concepts of geology and hydrology in planning; Climate change and built environment; Climate responsive design; Environmental impact assessment; Land use and environmental planning; planning in the context of disaster risks.

**Urban Design, Landscape and Conservation:**

Elements of urban built environment; Principles, tools and techniques of urban design; Public spaces, Guidelines, Development controls for regulating and promoting built form; Three-dimensional built form; Urban renewal and conservation; Landscape Planning (elements and aspects).

**Utilities and Services Planning:**

Basic concepts and theories in utilities and services planning; Building safety and security systems; Concepts and techniques for water supply and distribution system, water harvesting systems, waste water treatment, storm water management, sanitation, sewage disposal, solid waste management, etc., Renewable sources of Energy.

**Transport Planning:**

Transport system; Classifications; Process and principles of transportation planning and traffic engineering; Road capacity and travel demand forecasting; Traffic survey methods, Traffic analyses and design considerations; management and control in urban areas; Mass transportation planning; Intelligent Transportation Systems.

**Housing and Community Planning:**

Housing typologies; Neighborhood; Community; Residential densities; Affordable housing; Real estate valuation; residential land allocation; Demand Assessment; National Housing Policies, Programmes and Schemes.; Slums, Squatters and informal housing; Standards for housing and community facilities.

**City Planning:**

Theories of City planning and Models, Types of City Plans, Plan making process, Development proposals and land use planning, Location dynamics, Delineation of zones, Land allocation, Norms, Development guidelines and Regulations, Provision of utilities and services, Public participation, emerging and futuristic concepts of city and its planning.

**Metropolitan Planning, Development and Management:**

Metropolis and metropolitanisation – Definitions, Concepts, Process; Satellite towns and counter-magnets; Techniques of delineation, Agglomeration economics, Economic base of cities and region and changing spatial structure of urban areas, Urban sprawl, Urban fringe, Transit Oriented Development (TOD).

**Planning organisation:**

Roles of Town and Country Planning Organizations, Authorities, Local Bodies, Departments; Planning Legislation - Acts and Rules, Planning, implementation and evaluation.

**Architecture:**

Architectural Design, Principles, Environment and Ecology, Building Materials And Construction, Structural Mechanics, Design of Structures, Climatology, Building Services, Surveying, Site Planning, Computer Applications (2D drafting,3d Model, Walk throughs, BIM), Architectural Drawing, Sketching, Model Making, Theory of Design, Acoustics, Landscape architecture and Interior Design.

**Part-B: Aptitude/Ability tests** (30 Minutes, 20 Marks, Maximum of 15 Multiple Choice Questions)

**Topics:** Numerical Reasoning; Logical Reasoning; Diagrammatic Reasoning; Abstract Reasoning; Deductive Reasoning.

**Part-C: Descriptive questions** (30 Minutes, 20 Marks)

Technical questions from topics as given under Part-A relevant to the '**specialization**' mentioned in the advertisement.