

# JEE Main Syllabus for Paper 2B (B.Planning)

## Syllabus Structure

JEE Main Paper 2B consists of three parts:

- **Part I: Mathematics** - Objective-type questions (MCQs and Numerical Answer Type) covering topics from Class 11 and 12.
- **Part II: Aptitude Test** - Objective-type questions testing general awareness, reasoning, and analytical skills.
- **Part III: Planning-Based Questions** - Objective-type questions assessing knowledge of urban planning, architecture, and related concepts.

## Part I: Mathematics Syllabus

The Mathematics section is identical to that of Paper 1 (B.E./B.Tech) and Paper 2A (B.Arch), focusing on topics from Class 11 and 12. Key topics include:

- **Sets, Relations, and Functions:** Types of sets, relations, functions, and their representations.
- **Complex Numbers and Quadratic Equations:** Complex numbers, Argand plane, quadratic equations, roots.
- **Matrices and Determinants:** Matrix operations, determinants, inverse, and applications.
- **Permutations and Combinations:** Counting principles, permutations, combinations.
- **Binomial Theorem and Its Simple Applications:** Binomial expansions, general term.
- **Sequences and Series:** Arithmetic Progression (AP), Geometric Progression (GP), Harmonic Progression (HP), sums of series.
- **Limit, Continuity, and Differentiability:** Limits, continuity, derivatives, Rolle's and Mean Value theorems.
- **Integral Calculus:** Indefinite and definite integrals, areas under curves.
- **Differential Equations:** Order, degree, formation, and solutions of differential equations.

- **Coordinate Geometry:** Straight lines, circles, conic sections (parabola, ellipse, hyperbola).
- **Three Dimensional Geometry:** Direction cosines, lines, planes, and their equations.
- **Vector Algebra:** Scalar and vector products, applications in geometry.
- **Statistics and Probability:** Measures of central tendency, dispersion, probability, Bayes theorem.
- **Trigonometry:** Trigonometric identities, equations, heights, and distances.
- **Mathematical Reasoning:** Logical operations, statements, and their validity.

## Part II: Aptitude Test Syllabus

The Aptitude section evaluates general awareness, analytical skills, and architectural/planning-related knowledge, similar to Paper 2A (B.Arch). Key topics include:

- **Awareness of Persons, Places, Buildings, and Materials:** Famous buildings, landmarks, construction materials, and their properties.
- **Three-Dimensional Perception:** Visualization of 3D objects from 2D drawings, understanding scale and proportion.
- **Visualizing Different Sides of 3D Objects:** Perspective views, rotational views of objects.
- **Analytical Reasoning:** Logical reasoning, pattern recognition, puzzles.
- **Mental Ability:** Verbal and non-verbal reasoning, problem-solving skills.
- **Texture and Objects Related to Architecture and Planning:** Building materials, textures, and their applications in construction and planning.
- **Architectural Awareness:** Basic knowledge of architecture, historical and modern structures.

## Part III: Planning-Based Questions Syllabus

The Planning section tests candidates knowledge of urban planning, governance, and socio-economic aspects of planning. Key topics include:

- **General Awareness:** Government programs related to urban and rural development, environmental issues, and sustainability.
- **Social Sciences:** Urbanization, its problems, and remedies; socio-economic issues in planning; rural and urban settlement patterns.
- **Planning Concepts:** Basics of urban planning, town planning principles, master plans, zoning regulations.

- **Government Schemes and Policies:** Knowledge of schemes like Smart Cities Mission, AMRUT, Swachh Bharat Mission, and other urban development programs.
- **Environmental and Infrastructure Planning:** Sustainable development, environmental impact assessment, infrastructure planning (roads, water supply, sanitation).
- **Planning Techniques and Tools:** Basics of GIS (Geographic Information System), remote sensing, and their applications in planning.
- **Urban and Rural Development:** Housing, transportation, public amenities, and community planning.