

and hyperbola, tracing of conics.

**Calculus:** Limits & continuity of functions, Differentiation of function of function, tangents & normal, Simple examples of Maxima & Minima, Indeterminate forms, Integration of function by parts, by substitution and by partial fraction, definite integral, application to volumes and surfaces of frustums of sphere, cone and cylinder. Differential equations of first order and of first degree.

**Vectors :**Algebra of vectors, scalar and vector products of two and three vectors and their applications.

**Dynamics:**Velocity,compositionofvelocity,relativevelocity,acceleration,compositionofaccelerations, Motion under gravity, Projectiles, Laws of motion, Principles of conservation of momentum and energy, direct impact of smoothbodies.

**Statics:**Compositionofcoplanar,concurrentandparallelforcesmomentsandcouplesresultantofsetof coplanarforcesandconditionofequilibrium,determinationofcentroidinsimplecases,Problemsinvolving friction.

### **Aesthetic sensitivity**

Aesthetic sensitivity Test is aimed to evaluate a candidate for aesthetic Perception, Imagination, and Observation; Creativity and Communication; and Architectural awareness.

- Visualizing three dimensional objects from two dimensional drawings
- Visualizing different sides / surfaces of three dimensional objects.
- Identifying commonly used materials and objects based on their textural qualities.
- Analytical Reasoning
- Mental Ability
- Imaginative comprehension and expression
- Architectural awareness

### **Part- B: Drawing Aptitude**

The Drawing Aptitude Test is aimed to evaluate a candidate for his understanding of Scale and Proportion; sense of perspective, color and; understanding of the effects of light on objects through shades and shadows

- Ability to sketch a given object proportionately and rendering the same in visually appealing manner
- Visualising and drawing the effects of light on the objects and their shadow cast on the surroundings.
- Sense of Perspective Drawing
- Combining and composing given three dimensional elements to form a building or structural form
- Creating interesting two dimensional compositions using given shapes or planer forms
- Creating visual harmony using colors in given composition
- Understanding of scale and sense of proportion

## **PAPER – 4 (APTITUDE TEST FOR GENERAL AWARENESS (BHMCT/BFAD/BFA/ MBA (Integrated))**

### **(A) Reasoning & Logical Deduction:**

- Geometrical designs & Identification
- Selection of related letters / words / numbers / figures
- Identification of odd thing / item out from a group
- Completion of numerical series based on the pattern / logic
- Fill in the blanks of the series based on the numerical pattern and logic of the series
- Syllogisms (logic based questions), Identification of logic & selection of correct answers based on the logic

### **(B) Numerical Ability & Scientific Aptitude:**

- Arithmetical questions up to 10<sup>th</sup> standard
- Calculation of fraction, percentages, square root etc.
- Profit & Loss and Interest calculations
- Data/Table analysis, Graph & Bar Diagram and Pie Chart analysis
- Questions related to common use of science (Physics & Chemistry)
- Health & Nutrition

**(C) General Knowledge:**

- Current affairs / Events (Political, Social, Cultural & Economics)
- Historical events
- Geography including Tourist Places/Spots
- Current affairs relating to Business & Trade
- Countries & Currencies
- Latest Who's Who?
- Sports & Games

**(D) English Language:**

- Word Meanings
- Antonyms & Synonyms
- Meaning of Phrases & Idioms
- Fill in the blanks
- Complete / Improvement of the sentences with correct use of Pronouns, Verbs, Adverbs & Adjectives
- Reading comprehension's followed by questions

**PAPER – 5 (APTITUDE TEST FOR LATERAL ENTRY IN ENGINEERING (B.SC. GRADUATES) / LATERAL ENTRY IN 2<sup>nd</sup> Year MCA )**

**Part 1: Mathematics**

**Algebra:** Sets relations & functions, De-Morgan's Law, Mapping Inverse relations, Equivalence relations, Peano's axioms, Definition of rationals and integers through equivalence relation, Indices and surds, Solutions of simultaneous and quadratic equations, A.P., G.P. and H.P., Special sums i.e.  $\sum n^2$  and  $\sum n^3$  ( $n \in \mathbb{N}$ ), Partial fraction, Binomial theorem for any index, exponential series, Logarithm and Logarithmic series. Determinants and their use in solving simultaneous linear equations, Matrices, Algebra of matrices, Inverse of a matrix, Use of matrix for solving equations.

**Probability:** Definition, Dependent and independent events, Numerical problem on addition and multiplication, theorem of probability.

**Trigonometry:** Identities, Trigonometric equations, properties of triangles, solution of triangles, heights and distances, Inverse function, Complex numbers and their properties, Cube roots of unity, De-Moivre's theorem.

**Co-ordinate Geometry:** Pair of straight lines, Circles, General equation of second degree, parabola, ellipse and hyperbola, tracing of conics.

**Calculus:** Limits & continuity of functions, Differentiation of function of function, tangents & normal, Simple examples of Maxima & Minima, Indeterminate forms, Integration of function by parts, by substitution and by partial fraction, definite integral, application to volumes and surfaces of frustums of sphere, cone and cylinder. Differential equations of first order and of first degree.

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