



# **BASIC INTELLIGENCE AND REMEMBRANCE TEST**

202- MATHEMATICS

SYLLABUS: LEVEL ONE (THEORY)

## **PART 01 THEORY:- 80 MARKS:**

<b><u>UNIT NUMBER</u></b>	<b><u>UNIT NAME</u></b>	<b><u>THEORY MARKS</u></b>	<b><u>PRACTICAL MARKS</u></b>	<b><u>TOTAL</u></b>
01	Algebra	18	03	21
02	Geometry And Trigonometry	18	04	22
03	Statistics And Probability	15	05	20
04	Coordinate Geometry	06	04	10
05	Commercial Mathematics	15	00	15
06	Menstruation	08	04	12
<b><u>TOTAL</u></b>		80	20	100

### • **UNIT 01: ALGEBRA (18 marks)**

1. Factoring & Fractions.
2. Quadratic Equations and cubic equations in one variable
3. Linear equations up to three variables
4. Exponents & Radicals.
5. Inequalities.
6. Geometric Progression:  $n^{\text{th}}$  term of GP, Sum of first Infinite Numbers Of GP
7. Basics of Harmonic Progression
8. Matrices and Determinants (basics)
9. Details Of Arithmetic Progression

### • **UNIT 02: GEOMETRY AND TRIGONOMETRY (18 marks)**

1. Triangles: Similar and Congruent.
2. Basic proportionality theorem, Pythagoras theorem for triangles
3. Similar triangles
4. Properties of parallel lines
5. Exterior angle sum property of triangle
6. Properties of Parallelogram
7. Properties of triangles and parallelogram on same base and between the same parallels.
8. Properties of Chords and Tangents to a circle
9. Construction of Tangent to a circle.

10. Trigonometric Ratios: sin, cos, tan, cosec. Sec and cot.
11. Ratios of complementary angles.
12. Values of all ratios for following angles: 0, 30, 45, 60 and 90
13. Following trigonometric identities
  - I.  $1 + \tan^2 A = \sec^2 A$
  - II.  $1 + \cot^2 A = \operatorname{cosec}^2 A$
  - III.  $\cos^2 A + \sin^2 A = 1$

• **UNIT 03: STATISTICS AND PROBABILITY (15 MARKS)**

1. Mean Mode and Median of grouped and ungrouped data.
2. Quartile, Deciles and Percentiles for grouped and ungrouped data.
3. Plotting of histogram, Bar graphs and line charts.
4. Plotting of ogive curves.
5. Empirical Probability.

• **UNIT 04: COORDINATE GEOMETRY (06 MARKS)**

1. Distance Formula
2. Section Formula
3. Area of Triangle Formula.

• **UNIT 05: COMMERCIAL MATHEMATICS (15 MARKS)**

1. Percentage
2. Profit and Loss
3. Interest (Simple and Compound)
4. Depreciation
5. Partnership
6. GST
7. Shares and Dividends

• **UNIT 06: MENSURATION (08 MARKS)**

1. Heron's Formula
2. Area of sector and segment
3. Surface Areas of combined Solids.
4. Volume of combined Solids