

# MATH Question Pattern

Class XI

CHAPTER	NO. OF QUESTION	MARKS ALLOTTED	TIME (in mins)
Sets Relations & Functions Trigonometric Functions	LA 1 SA 2 VSA 2 MCQ 1	5 8 4 1 } 18	35
<b>ALGEBRA</b> • Principle of Mathematical Induction • Complex No. & Quadratic Equ. • Linear Inequalities • Permutation & combination • Binomial theorem • Sequence & Series	LA 2 SA 2 VSA 2 MCQ 3	10 8 4 3 } 25	60
• Straight Lines • Conic sections • Introduction to 3-D Geo.	LA 1 SA 2 VSA 1 MCQ 2	5 8 2 2 } 17	40
Limits & Derivatives	LA - SA 1 VSA 1 MCQ 2	0 4 2 2 } 8	15
Mathematical Reasoning	LA - SA 1 VSA - MCQ -	- 4 - - } 4	6
Statistics Probability	LA - SA 1 VSA 1 MCQ 2	- 4 2 2 } 8	24
<b>TOTAL</b>		<b>80</b>	<b>180</b>

MCQ –  $10 \times 1 = 10$  (total 15 questions)  
 VSA –  $7 \times 2 = 14$  (total 14 questions)  
 SA –  $9 \times 4 = 36$  (total 16 questions)  
 LA –  $4 \times 5 = \underline{20}$  (total 10 questions)  
           80 (total 55 questions)

**1. Group A (MCQ) [1 X 10 = 10]**

- a) Sets or Trigonometric
- b) Algebra
- c) Algebra
- d) Algebra or Algebra
- e) Geometry
- f) Geometry or Geometry
- g) Limits
- h) Limits or Derivatives
- i) Probability
- j) Probability / Statistics

**2. Group B (VSAQ) [Each questions carries 2 marks]**

- a) (2 out of 4) [2 X 2 = 4]
  - i) Set
  - ii) Relation or mapping
  - iii) Trigonometry (associated; compd; angles; sum, prod; multiple & sub multiple angles)
  - iv) Trigonometry (general solution / properties of triangle) Two chapters (general solution & properties of triangle) are to be covered either in 2a(v) & 3a(iii)
- b) (2 out of 4) [2 X 2 = 4]
  - i) Complex numbers
  - ii) permutation and combination
  - iii) binomial theorem
  - iv) AP/GP/Infinite GP [3 chapters (A.P & G.P & Infinite G.P) are to be covered in either of questions 2b(v); 3b(v); 4b(iv)]
- c) (1 out of 2) [1 X 2 = 2]
  - i) straight line
  - ii) Analytical 3-D Geometry
- d) (1 out of 2) [2 X 1 = 2]
  - i) limit
  - ii) derivatives
- e) (1 out of 2) [2 X 1 = 2]
  - i) Probability
  - ii) Statistics

**3. Group C (SAQ) [Each questions carries 4 marks]**

- a) (2 out of 3) [2 X 4 = 8]
  - i) Set / Relation / mapping
  - ii) Associated; comp; angles; sum, prod; multiple & sub multiple angles

iii) General solution / properties of triangle [Two chapters (general solution & properties of triangle) are to be covered either in 2a(v) & 3a(iii)]

- b) (2 out of 5) [2 X 4 = 8]  
i) mathematical induction  
ii) complex number  
iii) permutation and combination  
iv) binomial theorem  
v) sequence & series (AP/GP/Institute GP) [3 chapters (A.P & G.P & Infinite G.P) are to be covered in either of questions 2b(v); 3b(v); 4b(iv)]
- c) (2 out of 3) [2 X 4 = 8]  
i) straight line  
ii) straight line  
iii) circle
- d) (1 out of 2) [1 X 4 = 4]  
i) limit  
ii) derivatives
- e) (1 out of 2) [1 X 4 = 4]  
i) mathematical reasoning  
ii) mathematical reasoning
- f) (1 out of 2) [1 X 4 = 4]  
i) Probability  
ii) Statistics

**4. Group D (LAQ) [Each questions carries 5 marks]**

- a) (1 out of 2) [1 X 5 = 5]  
i) Trigonometry  
ii) Trigonometry
- b) (2 out of 4) [2 X 5 = 10]  
i) inequality (with graph)  
ii) quadratic equation & complex numbers  
iii) permutation and combination  
iv) sequence & series (AP/GP/Institute GP) [3 chapters (A.P & G.P & Infinite G.P) are to be covered in either of questions 2b(v); 3b(v); 4b(iv)]
- c) (1 out of 3) [1 X 5 = 5]  
i) parabola / ellipse / hyperbola  
ii) parabola / ellipse / hyperbola  
iii) parabola / ellipse / hyperbola
- } one question from each chapters.

**PROJECT -20 Marks**

**Section: A (compulsory) 10 Marks**

1. Statistics: Use of graphs, different types of graphical representation, inference about data from the graphs.

OR

2. Curve tracing with reference to algebraic, trigonometric and greatest integer function, sigma function.

**Section: B 10 Marks**

**Any one of the following**

1. Project on concept of limit.
2. Project on history, development and/or application of complex numbers contribution of mathematics in the relevant fields with a historical approach.
3. Use of algebra in investment planning with various forms of investment and formulas for calculating interest on savings.
4. Project on properties and application of parabola, ellipse.

**MARKS DIVISION**

**PRESENTATION: 5+5=10**

**LAB. NOTE BOOK: 3+3=6**

**VIVA-VOCE: 2+2=4**