CLASS XI MATHEMATICS SAMPLE PAPER – 2

Time: 3 Hours **Maximum Marks:** 80

Instructions: Attempt all questions. Show all steps. Calculators are not permitted.

Section A – MCQs (10×1)

1. Number of proper subsets of a set with 4 elements is ___.

2. Domain of 1/(x–5) is ___.

3. Value of cos 0° is ___.

4. log10(1000)= ___.

5. Slope of a vertical line is ___.

6. nCr equals ___.

7. Equation of x-axis is ___.

8. Distance between (1,2) and (4,6) is ___.

9. sin(90°–θ)= ___.

10. First term of GP 3,6,12,... is ___.

Section B – Very Short

11. State the associative law for sets.

12. Solve log■x=6.

13. Find equation of line through (3,2) parallel to y-axis.

14. Evaluate tan45°.

15. Find 8P2.

Section C – Short

16. Prove sec²θ–tan²θ=1.

17. Solve |2x–5|<7.

18. Find the 20th term of GP 2,4,8,...

19. Find equation of circle with centre (0,0) radius 7.

20. Expand (x+3)^5 using Binomial Theorem.

21. A committee of 3 is chosen from 8 students. Form suitable counting expressions.

Section D – Long

22. Solve an application based problem on permutations and combinations.

23. Derive the section formula in coordinate geometry.

24. Solve trigonometric equations in 0° to 360°.

25. A data set of student marks is given. Prepare grouped frequency table and calculate mean.

Section E – HOTS/Case Study

26. A communication tower and observation point form a triangle. Use trigonometric ratios to formulate and solve suitable questions.

27. A company survey records product preferences. Use sets and Venn diagrams to answer suitable analytical questions.