

CLASS X – MATHEMATICS
MODEL QUESTION PAPER
(SET- 6)

Time Allowed: 3 Hours

Maximum Marks: 80

Section A (1 × 20 = 20 Marks)

Q1–Q18 MCQs

Q1.

HCF of 198 and 306 is:

- (a) 9
- (b) 18
- (c) 27
- (d) 36

Q2.

Zero of polynomial $10x - 50$ is:

- (a) 2
- (b) 5
- (c) -5
- (d) 10

Q3.

The pair of equations

$$4x + 5y = 17$$

$$8x + 10y = 34$$

has:

- (a) Unique solution
- (b) No solution
- (c) Infinitely many solutions
- (d) Exactly two solutions

Q4.

The 22nd term of AP: 3, 8, 13, ... is:

- (a) 108
- (b) 113
- (c) 118
- (d) 123

Q5.

Probability of getting a multiple of 3 when a die is thrown:

- (a) $1/6$
- (b) $1/3$
- (c) $1/2$
- (d) $2/3$

Q6.

Value of $\cos 45^\circ$ is:

- (a) 1
- (b) $1/2$
- (c) $1/\sqrt{2}$
- (d) $\sqrt{3}/2$

Q7.

Distance between (2, -1) and (5, 3) is:

- (a) 5
- (b) $\sqrt{41}$
- (c) $\sqrt{25}$
- (d) $\sqrt{20}$

Q8.

Nature of roots of $x^2 - 12x + 36 = 0$ is:

- (a) Real & distinct
- (b) Real & equal
- (c) Not real
- (d) Irrational

Q9.

Area of circle of radius 35 cm ($\pi = 22/7$) is:

- (a) 3850 cm^2
- (b) 3920 cm^2
- (c) 4000 cm^2
- (d) 3600 cm^2

Q10.

Mean of 4, 8, 12, 16, 20 is:

- (a) 8
- (b) 10
- (c) 12
- (d) 14

Q11.

If sides of similar triangles are in ratio 7:9, ratio of areas is:

- (a) 7:9
- (b) 49:81
- (c) 9:7
- (d) 81:49

Q12.

The tangent to a circle at any point is perpendicular to:

- (a) Chord
- (b) Radius
- (c) Diameter
- (d) Arc

Q13.

Volume of cube of side 12 cm is:

- (a) 144
- (b) 1728
- (c) 864
- (d) 288

Q14.

If $\sin \theta = 1$, then $\theta =$

- (a) 0°
- (b) 30°
- (c) 60°
- (d) 90°

Q15.

Median of 6, 10, 14, 18, 22, 26 is:

- (a) 14
- (b) 16
- (c) 18
- (d) 20

Q16.

Mode of 9, 10, 9, 11, 12, 9 is:

- (a) 9
- (b) 10
- (c) 11
- (d) 12

Q17.

Value of $\tan 30^\circ$ is:

- (a) 1
- (b) $\sqrt{3}$
- (c) $1/\sqrt{3}$
- (d) 0

Q18.

Surface area of sphere of radius 14 cm ($\pi = 22/7$) is:

- (a) 2464 cm^2
 - (b) 2400 cm^2
 - (c) 2500 cm^2
 - (d) 2600 cm^2
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Q19–Q20 Assertion–Reason

Q19.

Assertion (A): If discriminant is negative, roots are not real.

Reason (R): Discriminant = $b^2 - 4ac$.

- (a) Both true & R correct explanation
 - (b) Both true but R not explanation
 - (c) A true R false
 - (d) A false R true
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Q20.

Assertion (A): In a triangle, sum of all angles is 180° .

Reason (R): A triangle has three sides.

- (a) Both true & R correct explanation
- (b) Both true but R not explanation
- (c) A true R false
- (d) A false R true

Section B (2 × 5 = 10 Marks)**Q21.**

Find HCF of 255 and 867 using Euclid's Division Algorithm.

Q22.

Find 28th term of AP: 1, 6, 11, ...

Q23.

Solve quadratic equation:

$$x^2 - 13x + 42 = 0.$$

Q24.

Find mean of:

15, 25, 35, 45, 55.

Q25.

Find area of sector of circle radius 28 cm, angle 45°.

Section C (3 × 6 = 18 Marks)**Q26.**

Solve pair of linear equations:

$$5x - 2y = 4$$

$$3x + y = 11$$

Q27.

Prove: Diagonals of rhombus are perpendicular.

Q28.

Find median of grouped data:

Class Frequency

0-10 4

10-20 8

20-30 16

Class Frequency

30–40 10

40–50 2

Q29.

From top of building 80m high, angle of depression is 45° . Find horizontal distance.

Q30.

Find sum of first 50 terms of AP: 4, 9, 14, ...

Q31.

Find curved surface area of cylinder radius 14 cm height 20 cm.

Section D (5 × 4 = 20 Marks)

Q32.

Solve quadratic equation by completing square method:

$$x^2 - 4x - 12 = 0.$$

Q33.

Prove Pythagoras Theorem.

Q34.

A card is drawn from deck of 52 cards.

Find probability of getting:

- (i) Ace
- (ii) Face card

Q35.

A solid cone radius 14 cm height 48 cm is melted into spheres radius 4 cm. Find number of spheres formed.

Section E (Case Study Based) (4 × 3 = 12 Marks)

Q36.

A circular park radius 49 m.

- (i) Find circumference (1)

(ii) Find area (1)

(iii) Cost of fencing at ₹120 per metre (2)

Q37.

Grouped data of marks given.

Find mean using step deviation method.

Q38.

A ladder 40m long makes 30° angle with ground.

(i) Find height reached (1)

(ii) Distance from wall (1)

(iii) Verify $\sin^2\theta + \cos^2\theta = 1$ (2)
