CLASS X – MATHEMATICS

MODEL QUESTION PAPER

(SET- 1)

Time Allowed: 3 Hours Maximum Marks: 80

Section A (1 × 20 = 20 Marks)

Q1–Q18 MCQs

Q1.

HCF of 96 and 404 is:
(a) 4
(b) 8
(c) 12
(d) 16

Q2.

Zero of polynomial 4x – 12 is:
(a) 2
(b) 3
(c) –3
(d) 4

Q3.

The pair of linear equations 2x + 3y = 11 and 4x + 6y = 22 has:
(a) Unique solution
(b) No solution
(c) Infinitely many solutions
(d) Exactly two solutions

Q4.

The 10th term of AP: 3, 7, 11, ... is:
(a) 39

(b) 40
(c) 41
(d) 43

Q5.

Probability of getting a tail when tossing a coin once:
(a) 0
(b) 1
(c) 1/2
(d) 2

Q6.

Value of cos 60° is:
(a) 1
(b) 1/2
(c) $\sqrt{3}/2$
(d) 0

Q7.

Distance between (2,3) and (6,6) is:
(a) 5
(b) $\sqrt{25}$
(c) $\sqrt{29}$
(d) $\sqrt{20}$

Q8.

Nature of roots of $x^2 - 4x + 4 = 0$:
(a) Real & distinct
(b) Real & equal
(c) Not real
(d) Irrational

Q9.

Area of circle of radius 14 cm is:
(a) 616 cm^2
(b) 308 cm^2
(c) 154 cm^2
(d) 196 cm^2

Q10.

Median of 5, 7, 9, 11, 13 is:
(a) 7
(b) 9
(c) 11
(d) 10

Q11.

If $\Delta ABC \sim \Delta DEF$ and $AB/DE = 2/3$, then ratio of their areas is:
(a) 2/3
(b) 4/9
(c) 3/2
(d) 9/4

Q12.

Tangent at any point of circle is perpendicular to:
(a) Diameter
(b) Chord
(c) Radius
(d) Arc

Q13.

Volume of sphere of radius 7 cm is:
(a) 1437.33 cm^3
(b) 1372 cm^3
(c) 1400 cm^3
(d) 1500 cm^3

Q14.

If $\tan \theta = 1$, then $\theta =$
(a) 30°
(b) 45°
(c) 60°
(d) 90°

Q15.

Mean of first 10 natural numbers is:
(a) 5
(b) 5.5
(c) 6
(d) 4.5

Q16.

Mode of 2, 3, 5, 3, 7, 3 is:
(a) 2
(b) 3
(c) 5
(d) 7

Q17.

If $\sin^2\theta + \cos^2\theta = ?$
(a) 0
(b) 1
(c) 2
(d) –1

Q18.

Surface area of cube of side 4 cm is:
(a) 64
(b) 96
(c) 128
(d) 256

Q19–Q20 (Assertion–Reason)

Q19.

Assertion (A): Probability of certain event is 1.
Reason (R): Probability always lies between 0 and 1.

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

Q20.

Assertion (A): Sum of interior angles of triangle is 180°.
Reason (R): A triangle is a three-sided polygon.

(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 135 and 225 using Euclid's Division Algorithm.

Q22.

Find 15th term of AP: 5, 9, 13, ...

Q23.

Find roots of quadratic equation:
$x^2 – 5x + 6 = 0$.

Q24.

Find mean of data:
4, 8, 12, 16, 20.

Q25.

Find area of sector of circle of radius 7 cm and angle 60°.

Section C (3 × 6 = 18 Marks)

Q26.

Solve:
$3x – 2y = 5$
$2x + y = 4$

Q27.

Prove: Opposite sides of parallelogram are equal.

Q28.

Find median of grouped data:

Class	Frequency
0–10	5
10–20	8
20–30	12

Class	Frequency
30–40	10
40–50	5

Q29.

From top of tower 40m high, angle of depression is 30°. Find horizontal distance.

Q30.

Find sum of first 20 terms of AP: 7, 10, 13, ...

Q31.

Find curved surface area of cylinder radius 7 cm height 10 cm.

Section D (5 × 4 = 20 Marks)

Q32.

Solve quadratic equation by quadratic formula:
$2x^2 – 7x + 3 = 0$.

Q33.

Prove Pythagoras Theorem.

Q34.

A bag contains 5 red, 4 blue and 3 green balls.
Find probability of selecting:
(i) Red
(ii) Not blue

Q35.

A solid cone of radius 7 cm and height 24 cm is melted into spheres of radius 3 cm. Find number of spheres formed.

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

Q36.

A circular park has radius 21 m.
(i) Find circumference (1)

(ii) Find area (1)
(iii) Cost of fencing at ₹100 per meter (2)

Q37.

Marks of students given in grouped table.
Find mean using step deviation method.

Q38.

A ladder 13m long leans against wall making 60° angle.
(i) Find height reached (1)
(ii) Distance from wall (1)
(iii) Verify $\sin^2\theta + \cos^2\theta = 1$ (2)