CLASS X – MATHEMATICS

MODEL QUESTION PAPER

SET 10

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

Section A (1 × 20 = 20 Marks)

Q1–Q18 MCQs

Q1.

HCF of 128 and 160 is:
(a) 16
(b) 32
(c) 8
(d) 64

Q2.

Zero of polynomial 25x – 100 is:
(a) 2
(b) 3
(c) 4
(d) 5

Q3.

The pair of equations
2x – 3y = 7
4x – 6y = 14
has:
(a) Unique solution
(b) No solution
(c) Infinitely many solutions
(d) Exactly two solutions

Q4.

The 40th term of AP: 1, 4, 7, ... is:
(a) 115
(b) 118
(c) 121
(d) 124

Q5.

Probability of getting a number divisible by 2 on a die:
(a) 1/6
(b) 1/3
(c) 1/2
(d) 2/3

Q6.

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

Q7.

Distance between (0,0) and (8,15) is:
(a) 17
(b) $\sqrt{289}$
(c) 16
(d) Both (a) and (b)

Q8.

Nature of roots of $x^2 - 10x + 25 = 0$ 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) 3800 cm^2
(c) 3900 cm^2
(d) 3600 cm^2

Q10.

Mean of 10, 20, 30, 40, 50 is:
(a) 20
(b) 25
(c) 30
(d) 35

Q11.

If sides of similar triangles are in ratio 5:12, ratio of areas is:
(a) 5:12
(b) 25:144
(c) 12:5
(d) 144:25

Q12.

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

Q13.

Volume of cylinder radius 7 cm height 30 cm ($\pi = 22/7$) is:
(a) 4620 cm^3
(b) 4500 cm^3
(c) 4700 cm^3
(d) 4800 cm^3

Q14.

If $\cos \theta = 0$, then $\theta =$
(a) 0°
(b) 45°
(c) 60°
(d) 90°

Q15.

Median of 2, 4, 6, 8, 10, 12 is:
(a) 6
(b) 7
(c) 8
(d) 5

Q16.

Mode of 1, 2, 3, 2, 4, 2 is:
(a) 1
(b) 2
(c) 3
(d) 4

Q17.

Value of $1 + \tan^2\theta$ equals:
(a) $\cos^2\theta$
(b) $\sec^2\theta$
(c) $\sin^2\theta$
(d) $\cot^2\theta$

Q18.

Surface area of cube of side 12 cm is:
(a) 576
(b) 864
(c) 144
(d) 720

Q19–Q20 Assertion–Reason

Q19.

Assertion (A): If discriminant > 0, roots are real and distinct.
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

Q20.

Assertion (A): In a triangle, the sum of any two sides is greater than the third side.
Reason (R): A triangle has three angles.

(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 867 and 306 using Euclid's Division Algorithm.

Q22.

Find 50th term of AP: 2, 6, 10, ...

Q23.

Solve quadratic equation:
$x^2 – 15x + 56 = 0$.

Q24.

Find mean of:
12, 24, 36, 48, 60.

Q25.

Find area of sector of circle radius 42 cm, angle 60°.

Section C (3 × 6 = 18 Marks)

Q26.

Solve pair of equations:
$3x + 5y = 19$
$2x – y = 3$

Q27.

Prove: Diagonals of parallelogram bisect each other.

Q28.

Find median of grouped data:

Class	Frequency
0–10	6
10–20	12
20–30	15

Class	Frequency
30–40	10
40–50	7

Q29.

From top of tower 150m high, angle of depression is 30°. Find horizontal distance.

Q30.

Find sum of first 80 terms of AP: 3, 9, 15, ...

Q31.

Find curved surface area of cone radius 14 cm height 48 cm.

Section D (5 × 4 = 20 Marks)

Q32.

Solve quadratic equation by completing square method:
$x^2 – 9x + 20 = 0$.

Q33.

Prove Basic Proportionality Theorem.

Q34.

A card is drawn from deck of 52 cards.
Find probability of getting:
(i) Heart
(ii) Face card

Q35.

A solid sphere radius 35 cm is melted into small cubes side 5 cm. Find number of cubes formed.

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

Q36.

A circular park radius 84 m.
(i) Find circumference (1)

(ii) Find area (1)
(iii) Cost of fencing at ₹300 per metre (2)

Q37.

Grouped data of marks given.
Find mean using step deviation method.

Q38.

A ladder 100m long makes 45° angle with ground.
(i) Find height reached (1)
(ii) Distance from wall (1)
(iii) Verify $\sin^2\theta + \cos^2\theta = 1$ (2)