

**CLASS X – MATHEMATICS**  
**MODEL QUESTION PAPER**  
**(SET- 7)**

**Time Allowed:** 3 Hours

**Maximum Marks:** 80

---

**Section A (1 × 20 = 20 Marks)**

**Q1–Q18 MCQs**

---

**Q1.**

HCF of 225 and 375 is:

- (a) 15
- (b) 25
- (c) 75
- (d) 45

**Q2.**

Zero of polynomial  $12x - 36$  is:

- (a) 2
- (b) 3
- (c) -3
- (d) 6

**Q3.**

The pair of equations

$$2x + 5y = 13$$

$$4x + 10y = 26$$

has:

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

**Q4.**

The 25th term of AP: 4, 7, 10, ... is:

- (a) 73
- (b) 76
- (c) 79
- (d) 82

**Q5.**

Probability of getting a factor of 6 when a die is thrown:

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

**Q6.**

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

- (a) 1
- (b)  $1/2$
- (c)  $\sqrt{3}/2$
- (d) 0

**Q7.**

Distance between  $(-3, 4)$  and  $(3, -4)$  is:

- (a) 10
- (b)  $\sqrt{100}$
- (c) 8
- (d) Both (a) and (b)

**Q8.**

Nature of roots of  $x^2 - 8x + 16 = 0$  is:

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

**Q9.**

Area of circle of radius 14 cm ( $\pi = 22/7$ ) is:

- (a)  $616 \text{ cm}^2$
- (b)  $308 \text{ cm}^2$
- (c)  $154 \text{ cm}^2$
- (d)  $196 \text{ cm}^2$

**Q10.**

Mean of 6, 12, 18, 24, 30 is:

- (a) 12
- (b) 15
- (c) 18
- (d) 20

**Q11.**

If sides of similar triangles are in ratio 2:5, ratio of areas is:

- (a) 2:5
- (b) 4:25
- (c) 5:2
- (d) 25:4

**Q12.**

Tangent at any point of circle is perpendicular to:

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

**Q13.**

Volume of cylinder radius 7 cm height 21 cm ( $\pi = 22/7$ ) is:

- (a) 3234 cm<sup>3</sup>
- (b) 3000 cm<sup>3</sup>
- (c) 3100 cm<sup>3</sup>
- (d) 3300 cm<sup>3</sup>

**Q14.**

If  $\cos \theta = \sqrt{3}/2$ , then  $\theta =$

- (a) 30°
- (b) 45°
- (c) 60°
- (d) 90°

**Q15.**

Median of 3, 6, 9, 12, 15, 18 is:

- (a) 9
- (b) 10.5
- (c) 12
- (d) 11

**Q16.**

Mode of 4, 5, 6, 5, 7, 5 is:

- (a) 4
- (b) 5
- (c) 6
- (d) 7

**Q17.**

Value of  $\sec^2\theta - \tan^2\theta$  is:

- (a) 0
- (b) 1
- (c) -1
- (d) 2

**Q18.**

Surface area of cube of side 9 cm is:

- (a) 486
  - (b) 729
  - (c) 324
  - (d) 450
- 

### **Q19–Q20 Assertion–Reason**

**Q19.**

Assertion (A): In a triangle, greater side has greater opposite angle.

Reason (R): Sum of angles of triangle is  $180^\circ$ .

- (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): If discriminant = 0, roots are equal.

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

---

**Section B (2 × 5 = 10 Marks)****Q21.**

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

**Q22.**

Find 35th term of AP: 5, 10, 15, ...

**Q23.**

Solve quadratic equation:

$$x^2 - 14x + 45 = 0.$$

**Q24.**

Find mean of:

7, 14, 21, 28, 35.

**Q25.**

Find area of sector of circle radius 14 cm, angle 120°.

---

**Section C (3 × 6 = 18 Marks)****Q26.**

Solve pair of equations:

$$4x - y = 9$$

$$2x + 3y = 13$$

**Q27.**

Prove: Diagonals of rectangle are equal.

**Q28.**

Find median of grouped data:

**Class Frequency**

0-10 6

10-20 12

20-30 18

### **Class Frequency**

30–40 8

40–50 6

#### **Q29.**

From top of tower 90m high, angle of depression is  $45^\circ$ . Find horizontal distance.

#### **Q30.**

Find sum of first 45 terms of AP: 2, 6, 10, ...

#### **Q31.**

Find curved surface area of cone radius 7 cm height 24 cm.

---

### **Section D (5 × 4 = 20 Marks)**

#### **Q32.**

Solve quadratic equation by quadratic formula:

$$x^2 - 5x - 14 = 0.$$

#### **Q33.**

Prove Basic Proportionality Theorem.

#### **Q34.**

A bag contains 7 red, 6 blue and 5 green balls.

Find probability of selecting:

- (i) Red
- (ii) Not blue

#### **Q35.**

A solid sphere radius 21 cm is melted into small cubes side 3 cm. Find number of cubes formed.

---

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

#### **Q36.**

A circular garden radius 56 m.

- (i) Find circumference (1)

(ii) Find area (1)

(iii) Cost of fencing at ₹150 per metre (2)

**Q37.**

Grouped data of marks given.

Find mean using step deviation method.

**Q38.**

A ladder 50m long makes  $60^\circ$  angle with ground.

(i) Find height reached (1)

(ii) Distance from wall (1)

(iii) Verify  $1 + \tan^2\theta = \sec^2\theta$  (2)