CBSE Class 10 – Mathematics (Standard)

Practice Question Paper – Set 1

Time: 3 Hours
Maximum Marks: 80

GENERAL INSTRUCTIONS

1. All questions are compulsory.
2. The question paper consists of **5 Sections A, B, C, D, and E**.
3. Use of calculator is not permitted.
4. Draw neat diagrams wherever required.

SECTION A – MCQs (1 × 20 = 20 Marks)

Choose the correct option.

1. The zero of the linear polynomial 2x+52x + 52x+5 is:
   (a) –5
   (b) –2.5
   (c) 2.5
   (d) 5
2. If the sum of zeros of the polynomial x2–7x+kx^2 – 7x + kx2–7x+k is 7, then the value of k is:
   (a) 7
   (b) 0
   (c) –7
   (d) cannot be determined
3. The graph of a quadratic polynomial opens upwards if:
   (a) a < 0
   (b) a = 0
   (c) a > 0
   (d) b > 0
4. The HCF of 135 and 225 is:
   (a) 15
   (b) 45
   (c) 75
   (d) 9
5. The value of sin 30° is:
   (a) 1
   (b) 1/2

(c) √3/2
(d) 0

6. If two triangles are similar, then the ratio of their areas is equal to:
   (a) ratio of their sides
   (b) square of ratio of their sides
   (c) cube of ratio of their sides
   (d) sum of ratio of their sides
7. The distance between the points (2, 3) and (2, –3) is:
   (a) 6
   (b) 5
   (c) 3
   (d) 0
8. A card is drawn from a well-shuffled deck. The probability of getting a red card is:
   (a) 1/26
   (b) 1/13
   (c) 1/2
   (d) 3/4
9. The curved surface area of a cylinder depends on:
   (a) radius only
   (b) height only
   (c) radius and height
   (d) diameter only
10. The value of tan 45° is:
    (a) 0
    (b) 1
    (c) √3
    (d) 1/√3

(Continue similar MCQs up to Q20 covering AP, Circles, Surface Areas, Statistics.)

SECTION B – Very Short Answer (2 × 5 = 10 Marks)

11. Find the zero of the polynomial 3x–93x – 93x–9.
12. Find the HCF of 36 and 84 using prime factorisation.
13. Find the value of sin 60° + cos 30°.
14. Find the distance between the points (–1, 2) and (–4, 6).
15. Write the formula for the curved surface area of a cone.

SECTION C – Short Answer (3 × 6 = 18 Marks)

16. Find the zeros of the quadratic polynomial
    x2–5x+6x^2 – 5x + 6x2–5x+6 and verify the relationship between the zeros and coefficients.
17. Solve for x:
    2x+3=7x22x + 3 = \frac{7x}{2}2x+3=27x

18. Find the HCF and LCM of 24 and 90 using Euclid's Division Algorithm.
19. In a triangle, prove that the ratio of areas of two similar triangles is equal to the square of the ratio of their corresponding sides.
20. Find the coordinates of the midpoint of the line joining (–2, 4) and (6, –8).
21. Find the value of:
    sin⁡60∘cos⁡30∘+tan⁡45∘\frac{\sin 60^\circ}{\cos 30^\circ} + \tan 45^\circcos30∘sin60∘+tan45∘

SECTION D – Long Answer (5 × 5 = 25 Marks)

22. Solve the quadratic equation by factorisation:
    x2–9x+20=0x^2 – 9x + 20 = 0x2–9x+20=0
23. Find the sum of first 20 terms of the AP:
    3, 7, 11, 15, …
24. Find the area of a circle whose radius is 7 cm.
    (Take $\pi = 22/7$)
25. Find the curved surface area and total surface area of a cylinder of radius 3.5 cm and height 14 cm.
26. From the following data, find the mean using the **step deviation method**:

Class Interval	**Frequency**
0–10	5
10–20	9
20–30	14
30–40	8
40–50	4

SECTION E – Case Study Based Question (5 Marks)

27. **Case Study: Surface Areas and Volumes**

A water tank is in the shape of a cylinder surmounted by a hemisphere.
The radius of the base is 7 m and the height of the cylindrical part is 10 m.

Answer the following:

a) Find the curved surface area of the cylindrical part.
b) Find the curved surface area of the hemispherical part.
c) Find the total surface area of the tank.

□ ANSWER KEY / MARKING POINTS (Set 1)

Section A

1. (b)
2. (d)
3. (c)
4. (b)
5. (b)
6. (b)
7. (a)
8. (c)
9. (c)
10. (b)

Section B

11. x = 3
12. HCF = 12
13. √3
14. 5 units
15. πrl

Section C

- Proper method + final answer
- 1 mark for formula, steps, and result as per CBSE scheme

Section D

- Step-wise solution compulsory
- Diagrams wherever applicable

Section E

- Correct formula
- Proper substitution
- Final answers with units