

General Instructions:

Read the following instructions carefully and follow them:

1. This question paper contains 38 questions. All Questions are compulsory.
2. This Question Paper is divided into 5 Sections A, B, C, D and E.
3. In Section A, Question numbers 1-18 are multiple choice questions (MCQs) and questions no. 19 and 20 are Assertion-Reason based questions of 01 mark each.
4. In Section B, Question numbers 21-25 are very short answer (VSA) type questions, carrying 02 marks each.
5. In Section C, Question numbers 26-31 are short answer (SA) type questions, carrying 03 marks each.
6. In Section D, Question numbers 32-35 are long answer (LA) type questions, carrying 05 marks each.
7. In Section E, Question numbers 36-38 are case study-based questions carrying 4 marks each with sub parts of the values of 1, 1 and 2 marks each respectively.
8. There is no overall choice. However, an internal choice in 2 questions of Section B, 2 questions of Section C and 2 questions of Section D has been provided. An internal choice has been provided in all the 2 marks questions of Section E.
9. Draw neat and clean figures wherever required. Take $\pi = \frac{22}{7}$ wherever required if not stated.
10. Use of calculators is NOT allowed.

SECTION – A

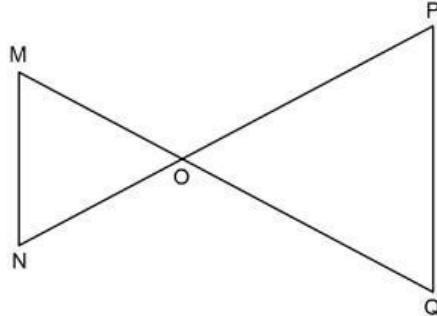
Section A consists of 20 questions of 1 mark each.

1. The number of polynomials having zeroes 3 and -2 is/are [Conceptual Application]
 (a) 2 (b) 3 (c) 0 (d) infinite

2. The pair of linear equation $x = 0$ and $y = 0$ has [Conceptual Application]
 (a) one solution (b) two solutions
 (c) infinitely many solutions (d) no solution

3. In given figure, $MN \parallel PQ$, then $\triangle MNO \sim \triangle QPO$ using [NCERT, Page 91]
 (a) SSS similarity criterion
 (b) SAS similarity criterion
 (c) AAA similarity criterion
 (d) None of these

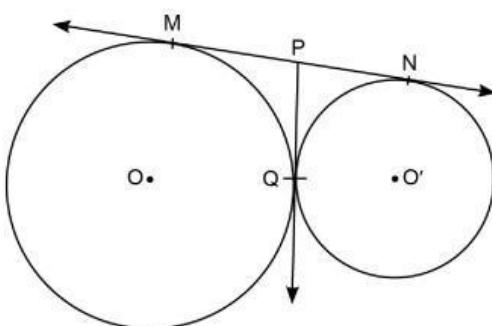
[NCERT, Page 91]



4. If $\cos A - \sin A = 1$, then $\cos A + \sin A$ is equal to [Conceptual Application]
 (a) 0 (b) ± 1 (c) $\pm \frac{1}{\sqrt{2}}$ (d) +2
 5. If $\sec^2 \theta - 2 \tan^2 \theta = 0$, then θ is [NCERT, Page 131]
 (a) 45° (b) 30° (c) 0° (d) 90°

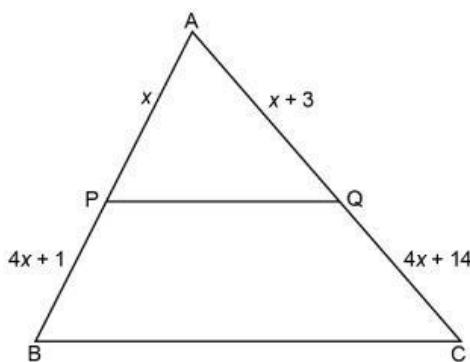
6. If $(a \times b)^n$ ends with digit zero for every natural number n , then a and b [NCERT, Page 4]
 (a) are any Natural numbers (b) are any even Natural numbers
 (c) are any odd Natural number (d) must be multiples of 2 and 5
 7. Which one is not a value of $\sin \theta$, where $0^\circ \leq \theta \leq 90^\circ$? [NCERT, Page 125]
 (a) $\frac{3}{2}$ (b) $\frac{\sqrt{2}}{2}$ (c) $\frac{\sqrt{3}}{2}$ (d) 0

8. In figure $PQ = 3$ cm, then length of MN is [Conceptual Application]



(a) 3 cm (b) 4.5 cm (c) 6 cm (d) 5 cm
 9. Length of an arc of a circle with radius 10 cm and central angle 45° is [NCERT, Page 158]
 (a) $\frac{110}{7}$ cm (b) $\frac{55}{7}$ cm² (c) $\frac{55}{7}$ cm (d) $\frac{550}{7}$ cm
 10. The quadratic equation whose roots are $\frac{2}{3}$ and $-\frac{1}{2}$ is [NCERT, Page 23]
 (a) $3x^2 - 2x + 1 = 0$ (b) $6x^2 - 2x + 3 = 0$
 (c) $3x^2 - x - 2 = 0$ (d) $6x^2 - x - 2 = 0$

11. In given figure, $PQ \parallel BC$, then value of x is [NCERT, Page 84]



(a) 2 (b) 4 (c) 5 (d) 3
 12. $\Delta ABC \sim \Delta DEF$ such that $AB = 3DE$ and $EF = 3$ cm then BC is [Conceptual Application]
 (a) 6 cm (b) 3 cm (c) 9 cm (d) 1 cm
 13. The volume of water displaced by a sphere of radius 5.25 cm is [Conceptual Application]
 (a) 606 cm^3 (b) 346.5 cm^3 (c) 606.38 cm^3 (d) 173.25 cm^3

14. The ratio of curved surface area of cylinder and total surface area of sphere whose diameters are equal and height of cylinder is also equal to diameter of cylinder is [Conceptual Application]
 (a) 2 : 1 (b) 4 : 1 (c) 1 : 4 (d) 1 : 1

15. Rahul and Sonia are playing a tennis match. The probability of Rahul winning the match is 0.62, then the probability of Rahul not winning the match is [NCERT, Page 214]
 (a) 0.38 (b) 0.62 (c) 0.50 (d) 0.40

16. The empirical relationship between three measures of central tendency is [NCERT, Page 197]
 (a) 2 Mode = 3 Median – Mean (b) 3 Mode = 2 Median – Mean
 (c) Mode = 3 Median – 2 Mean (d) Median = 3 Mode – 2 Mean

17. Consider the following frequency distribution

Class interval	0 – 5	5 – 10	10 – 15	15 – 20	20 – 25
Frequency	12	11	15	9	10

The upper limit of the median class is [NCERT, Page 192-193]
 (a) 10 (b) 5 (c) 12.5 (d) 15

18. C(p , 4) is the interior point on line joining points A(3, 5) and B(9, 3), then value of p is [Conceptual Application]
 (a) 3 (b) 4 (c) 9 (d) 6

Direction: In the question number 19 and 20, a statement of Assertion (A) is followed by a statement of Reason (R).

Choose the correct option.

(a) Both assertion (A) and reason (R) are true and reason (R) is the correct explanation of assertion (A).
 (b) Both assertion (A) and reason (R) are true and reason (R) is not the correct explanation of assertion (A).
 (c) Assertion (A) is true but reason (R) is false.
 (d) Assertion (A) is false but reason (R) is true.

19. **Assertion (A):** $\sqrt{3} + \sqrt{5}$ is an irrational number.

Reason (R): $\sqrt{p} + \sqrt{q}$ is an irrational number, if p and q are prime natural number.
 [Conceptual Application]

20. **Assertion (A):** Triangle having vertices (3, 6), (6, 8) and (2, 12) is an isosceles triangle.
Reason (R): If two sides of a triangle are equal in length, then triangle is an isosceles triangle.

[NCERT, Page 105]

SECTION – B

Section B consists of 5 questions of 2 marks each.

21. Find the value of x and y by elimination method [NCERT, Page 36]
 $2x + 5y = 10$
 and $3x + 6y = 20$

22. $\Delta ABC \sim \Delta PQR$, such that $\angle A = 69^\circ$, $\angle Q = 51^\circ$, then find $\angle R$. [NCERT, Page 95]