

Name : _____ Section : _____ Roll No: _____

General Instructions:

- i) The question paper contains three parts A, B and C.
- ii) Section A consists of 20 questions of 1 mark each. Attempt any 16 questions.
- iii) Section B consists of 20 questions of 1 mark each. Attempt any 16 questions.
- iv) Section C consists of 10 questions based on two Case Studies. Attempt any 4 questions from each case study.
- v) There is no negative marking.
- vi) Answers are to be written in the paper attached at the end of the question paper. Students should write the options in CAPITAL LETTERS only.

SECTION – A

Section A consists of 20 questions of 1 mark each. Any 16 questions are to be attempted.

1. The value of k for which the lines $3x - y - 5 = 0$ and $6x - 2y + k = 0$ are parallel is
A) $K = 10$ B) $K \neq -10$ C) $K = -10$ D) $K \neq 10$
2. If $HCF(a, b) = 12$ and $a \times b = 1800$, then the LCM (a, b) is
A) 3600 B) 900 C) 150 D) 90
3. The zeroes of the quadratic polynomial $x^2 + x - 2$ is
A) 2, 1 B) -2, 1 C) -1, 2 D) -1, -2
4. The distance of a point (6, 0) from the origin is
A) 6 unit B) 4 unit C) 8 unit D) 10 unit
5. If $\operatorname{cosec} A = p$ and $\sec A = q$, then $\cot A$ is
A) pq B) p/q C) q/p D) $1/p$
6. In a circle of diameter 14 cm, an arc subtends 90° at the center. The length of the arc is
A) 11 cm B) 14 cm C) 44 cm D) 22 cm
7. The least number that is divisible by all natural numbers from 1 to 10 both inclusive is
A) 10 B) 100 C) 504 D) 2520
8. If a and b are the two zeroes of the quadratic polynomial $2x^2 + 5x + 1$, then $a + b + ab$ is
A) -2 B) -1 C) 1 D) None of the above
9. If $49x + 51y = 499$ and $51x + 49y = 501$; then $x + y$ is
A) 7 B) 10 C) 9 D) 5
10. The distance of point P(2, 3) from x axis is
A) 2 unit B) 5 unit C) 1 unit D) 3 unit
11. Area of the largest circle that can be inscribed in a square of side 8 cm is
A) $64\pi \text{ cm}^2$ B) $32\pi \text{ cm}^2$ C) $16\pi \text{ cm}^2$ D) $24\pi \text{ cm}^2$
12. The perimeter of the semicircular protractor whose radius is 7 cm is
A) 22 cm B) 44 cm C) 36 cm D) 88 cm
13. If $p^2 = \frac{19}{36}$, then p is
A) Rational B) Irrational C) Whole number D) Integer

14. One equation of a pair of dependent linear equation is $-3x + 4y = 5$.
The second equation can be
A) $6x + 8y + 10 = 0$ B) $-6x = 8y + 10$
C) $-6x + 8y + 10 = 0$ D) $6x - 8y = -10$
15. The LCM of the least composite number and the highest one digit prime number is
A) 1 B) 28 C) 7 D) 14
16. The perimeter of a triangle with vertices $(0, 4)$, $(0, 0)$, $(3, 0)$ is
A) 5 unit B) 7 unit C) 12 unit D) $7\sqrt{5}$ unit
17. If $\operatorname{cosec} A = \frac{3}{2}$, then, $2(\operatorname{cosec}^2 A + \cot^2 A)$ is equal to
A) 3 B) 7 C) 9 D) 5
18. If one of the zeroes of the quadratic polynomial $ax^2 + bx + c$ (where $a \neq 0$); is 0, then the other zero is
A) $\frac{c}{a}$ B) $\frac{a}{b}$ C) $\frac{-ab}{b}$ D) $\frac{-b}{a}$
19. If $\sin A = \frac{1}{2}$ and $\cos B = \frac{1}{2}$, ($A, B < 90^\circ$) then value of $A + B$ is
A) 30° B) 60° C) 90° D) 45°
20. The pair of equations $y = 0$ and $y = -7$ has
A) one solution B) two solutions
C) infinitely many solutions D) no solution

SECTION – B

Section B consists of 20 questions of 1 mark each. Any 16 questions are to be attempted.

21. LCM of the smallest two digit number and the smallest composite number is
A) 12 B) 4 C) 20 D) 45
22. The pair of linear equations $x + 2y = 5$ and $3x + 2y = 10$ has
A) unique solution B) no solution
C) infinitely many solution D) none of the above
23. If $\sin A = \cos A$, then A is
A) 30° B) 45° C) 60° D) 90°
24. The midpoint of the line segment joining $A(-2, 8)$ and $B(-6, -4)$ is
A) $(-4, -6)$ B) $(2, 6)$ C) $(4, 2)$ D) $(-4, 2)$
25. If the perimeter of a circle is equal to that of a square, then the ratio of their areas is
A) 22:7 B) 14:11 C) 7:22 D) 11: 14
26. The decimal expansion of the rational number $\frac{1458}{125}$ will terminate after _____ places.
A) 1 decimal B) 2 decimal C) 3 decimal D) 4 decimal
27. The radius of a circle whose circumference is equal to sum of the circumference of two circles of diameter 36 cm and 20 cm.
A) 20 cm B) 24 cm C) 28 cm D) 32 cm
28. The HCF of 48 and 120 is
A) 8 B) 12 C) 24 D) 36
29. The pair of linear equations $2x + 15y = K$ and $Kx + 45y = 18$, has infinitely many solutions if
A) $K = 5$ B) $K = 6$ C) $K = 9$ D) $K = 18$

30. Area of the largest triangle that can be inscribed in a semicircle of radius r is
 A) r^2 B) $\frac{1}{2} r^2$ C) $2r^2$ D) $\sqrt{2}r^2$
31. The fourth vertex of parallelogram $A(-2, 3)$, $B(6, 7)$, $C(8, 3)$ is
 A) $(0, -1)$ B) $(0, 1)$ C) $(-1, 0)$ D) $(1, 0)$
32. If a pair of linear equations is consistent then the corresponding lines will be
 A) Parallel B) Always coincident
 C) intersecting D) intersecting or coincident
33. Y axis divides the line segment joined by points $(-4, 5)$ and $(3, 7)$ internally in the ratio
 A) 2:7 B) 3:7 C) 4:3 D) 3:4
34. The area of a square that can be inscribed in a circle of radius r is
 A) $4 r^2$ B) $2 r^2$ C) $3 r^2$ D) πr^2
35. If $1764 = 2^a \times 3^b \times 7^c$, then $a + b + c =$
 A) 3 B) 4 C) 5 D) 6
36. The line $x = 2$ and $y = 3$ are
 A) Intersecting B) Parallel
 C) Coincident D) None of the above
37. The prime factors of the denominator of 123.457 when expressed in the form of a rational number are
 A) 2, 3 B) 2, 3, 5 C) 2, 5 D) 3, 5
38. Which of the following is a solution of the pair of linear equations $x + 2y = 5$ and $7x + 3y = 13$?
 A) $x = 1, y = 2$ B) $x = 2, y = 1$
 C) $x = 3, y = 1$ D) $x = 1, y = 3$
39. The prime factorization of 11025 is
 A) $3^2 \times 5^2 \times 7$ B) $3^2 \times 5^2 \times 21$
 C) $3^2 \times 5^2 \times 7^2$ D) $3^2 \times 5^2 \times 17$
40. If a pole 6m high, casts a shadow of $2\sqrt{3}$ m long on the ground, then the sun's angle of elevation is
 A) 60° B) 45° C) 30° D) 90°

SECTION – C (Case study based questions)

Section C consists of 10 questions of 1 mark each. Attempt any 4 questions from each case study.

CASE STUDY – 1

The below picture is a natural example of parabolic shape which is represented by a quadratic polynomial. A parabolic arch is an arch in the shape of a parabola. In structure, their curve represents an efficient method of load, and so can be found in bridges and in architecture in a variety of forms.



