1. If the sum of zeroes of the polynomial $p(x) = 2x^2 - k\sqrt{2}x + 1$ is $\sqrt{2}$,then value of k is:

   (a) $\sqrt{2}$

   (b) 2

   (c) $2\sqrt{2}$

   (d) $\frac{1}{2}$

2. If the probability of a player winning a game is 0.79, then the probability of his losing the same game is:

   (a) 1.79

   (b) 0.31

   (c) 0.21

   (d) 0.21

3. If the roots of the equation $ax^2 + bx + c = 0$,$a \neq 0$ are real and equal, then which of the following relations is true?

   (a) $a = \frac{b^2}{c}$

   (b) $b^2 = ac$

   (c) $ac = \frac{b^2}{4}$

   (d) $c = \frac{b^2}{a}$

4. In an A.P., if the first term $a = 7$, nth term $a_n = 84$, and the sum of the first n terms $s_n = \frac{2093}{2}$, then n is equal to:

   (a) 22

   (b) 24

   (c) 23

   (d) 26

5. If two positive integers p and q can be expressed as $p = 18a^2b^4$ and $q = 20a^3b^2$ where a and b are prime numbers, then LCM(p, q) is:

   (a) $2a^2b^2$

   (b) $180a^2b^2$

   (c) $12a^2b^2$

   (d) $180a^3b^4$

6. AD is a median of $\triangle ABC$ with vertices $A(5, -6)$, $B(6, 4)$, and $C(0, 0)$. The length of AD is equal to:

   (a) $\sqrt{68}$ units

   (b) $2\sqrt{15}$ units

   (c) $\sqrt{101}$ units

   (d) 10 units

7. If $\sec\theta - \tan\theta = m$, then the value of $\sec\theta + \tan\theta$ is:

   (a) $1 - \frac{1}{m}$

   (b) $m^2 - 1$

   (c) $\frac{1}{m}$

   (d) $-m$

8. From the data $1, 4, 7, 9, 16, 21, 25$, if all the even numbers are removed, then the probability of getting at random a prime number from the remaining is:

   (a) $\frac{2}{5}$

   (b) $\frac{1}{5}$

   (c) $\frac{1}{7}$

   (d) $\frac{2}{7}$

9. For some data $x_1, x_2, \ldots, x_n$ with respective frequencies $f_1, f_2, \ldots, f_n$, the value of $\sum_i^n f_i (x_i - \overline{x})$ is equal to:

   (a) $n\overline{x}$

   (b) 1

   (c) Σf_i

   (d) 0

10. The zeroes of a polynomial x^2+px+q are twice the zeroes of the polynomial $4x^2 - 5x - 6$. The value of p is:

   (a) $-\frac{5}{2}$

   (b) $\frac{5}{2}$

   (c) -5

   (d) 10

11. If the distance between the points $(3, -5)$ and $(x, -5)$ is 15 units, then the values of x are:

   (a) $12, -18$

   (b) $-12, 18$

   (c) $18, 5$

   (d) $-9, -12$

12. If $\cos(\alpha + \beta) = 0$ then the value of $\cos\left(\frac{\alpha+\beta}{2}\right)$ is equal to:

   (a) $\frac{1}{\sqrt{2}}$

   (b) $\frac{1}{2}$

   (c) 0

   (d) $\sqrt{2}$

13. A solid sphere is cut into two hemispheres. The ratio of the surface areas of the sphere to that of the two hemispheres taken together is:

    (a) 1 : 1

    (b) 1 : 4

    (c) 2 : 3

    (d) 3 : 2

14. The middle-most observation of every data arranged in order is called:

    (a) mode

    (b) median

    (c) mean

    (d) deviation

15. The volume of the largest right circular cone that can be carved out from a solid cube of edge 2 cm is:

    (a) $\frac{4\pi}{3}$ cucm

    (b) $\frac{5\pi}{3}$ cucm

    (c) $\frac{8\pi}{3}$ cucm

    (d) $\frac{2\pi}{3}$ cucm

16. Two dice are rolled together. The probability of getting a sum of numbers on the two dice as 2, 3, or 5 is:

    (a) $\frac{7}{36}$

    (b) $\frac{11}{36}$

    (c) $\frac{5}{36}$

    (d) $\frac{4}{9}$

17. The center of a circle is at $(2, 0)$. If one end of a diameter is at $(6, 0)$, then the other end is at:

    (a) $(0, 0)$

    (b) $(4, 0)$

    (c) $(-2, 0)$

    (d) $(-6, 0)$

18. In the given figure, graphs of two linear equations are shown. The pair of these linear equations is:

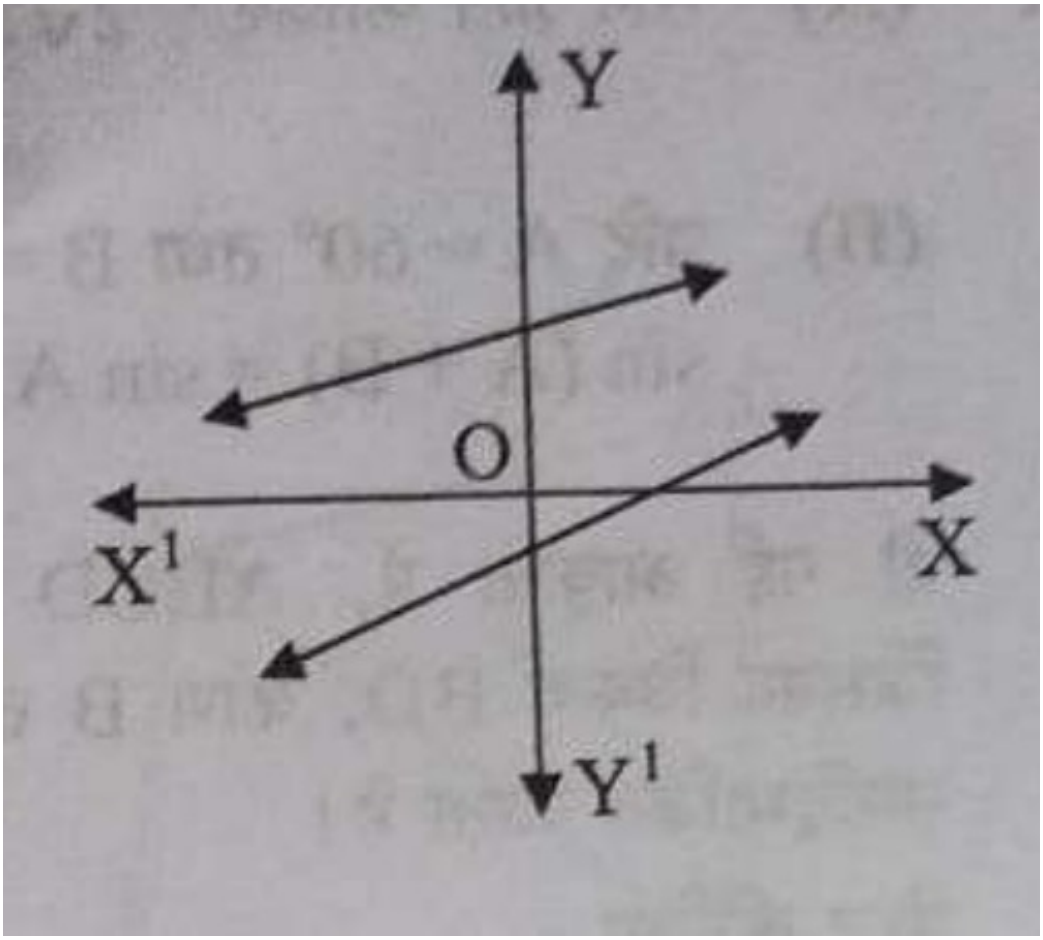

Figure 1

(a) consistent with a unique solution.

(b) consistent with infinitely many solutions.

(c) inconsistent.

(d) inconsistent but can be made consistent.

Directions:

In Q. No. 19 , a statement of Assertion (A) is followed by a statement of Reason (R). Choose the correct option.

19. **Assertion (A):** The tangents drawn at the end points of a diameter of a circle are parallel.

Reason (R): The diameter of a circle is the longest chord.

(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, but Reason (R) is not the correct explanation for Assertion (A).

(c) Assertion (A) is true, but Reason (R) is false.

(d) Assertion (A) is false, but Reason (R) is true.