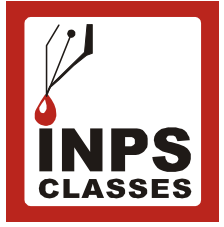


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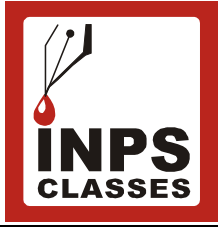
Mathematics



01. The point P(2, 3) of the co-ordinate plane is first reflected in X-axis then in Y-axis, the final position of the point is:
- (a) (2, -3) (b) (-2, 3) (c) (-2, -3) (d) (3, 2)
02. Sum of the interior angles of a polygon of side 'n' ($n > 2$) is :
- (a) $\frac{n\pi}{3}$ (b) $\frac{2n\pi}{3}$ (c) $\frac{4n\pi}{3}$ (d) $(n-2)\pi$
03. The weighted arithmetic mean (A. M.) of first 'n' natural numbers whose weights are equal to the corresponding number is:
- (a) $\frac{1}{4}(n+1)$ (b) $\frac{1}{2}n(n+1)$ (c) $\frac{1}{2}(2n+1)$ (d) None
04. Harmonic mean (H) of two numbers a and b is equal to:
- (a) $\frac{2ab}{a+b}$ (b) $\frac{a+b}{2ab}$ (c) $\frac{ab}{a+b}$ (d) None of these
05. For a binomial distribution $b(n, p)$, the mean is 6 and the S.D. is $\sqrt{2}$. Then the probability of success 'p' is equal to:
- (a) 1/3 (b) 1/2 (c) 2/3 (d) None of these
06. If a, b, c are three distinct positive real numbers, then the value of the expression $(b+c-a)(c+a-b)(a+b-c) - abc$ is:
- (a) Always positive (b) always negative (c) Always non-positive (d) none of these
07. The two circles $x^2 + y^2 + 2ax + 4ay - 3a^2 = 0$ and $x^2 + y^2 + 8ax - 6ay + 7a^2 = 0$ touches each other at the point
- (a) (0, a) (b) (a, a) (c) (a, 0) (d) (-a, 0)
08. Line $px + qy + r = 0$ touches the circle $x^2 + y^2 = a^2$ is
- (a) $r^2 = a^2(p^2 + q^2)$ (b) $p^2 + q^2 = a^2r^2$ (c) $p^2 + q^2 = r^2 + a^2$ (d) $p^2 + q^2 = r^2 - a^2$
09. $\lim_{n \rightarrow \infty} \left(1 + \frac{x}{n}\right)^n$ equals:
- (a) e (b) e^x (c) 0 (d) None of these
10. The some of infinite series $2 + \frac{2}{3} + \frac{2}{9} + \dots \infty$
- (a) 3 (b) 5 (c) 7 (d) None of these

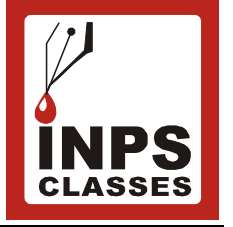
11. Find the focus of the parabola $y^2 - 8x + 6y + 9 = 0$
- (a) (2, 3) (b) (-2, 3) (c) (2, -3) (d) None of these
12. The eq $kx(x-2) + 6 = 0$ has equal roots, than value of $k = ?$
- (a) (6, 0) (b) (0, 6) (c) (1, 6) (d) None of these
13. How many way 6 person can sit around a circular table
- (a) 130 (b) 108 (c) 24 (d) 120
14. The binomial $(a, -b)^7$, if the sum of last of two terms is zero then what is relation between a and b
- (a) $a = 7b$ (b) $b = 7a$ (c) 0 (d) none
15. A fair dia is rolled five time then the getting probability 4 exactly two at a tiem?
- (a) ${}^5C_2 \left(\frac{1}{12}\right)^2 \left(\frac{11}{12}\right)^3$ (b) ${}^5C_2 \left(\frac{1}{12}\right)^3 \left(\frac{11}{12}\right)^2$ (c) ${}^5C_2 \left(\frac{1}{12}\right)^3 \left(\frac{11}{12}\right)^3$ (d) None of these
16. The diff. equ. of the circle whose centre at origin is ?
- (a) $y \frac{dy}{dx} + x = 0$ (b) $y \frac{dy}{dx} - x = 0$ (c) $y \frac{dy}{dt} + x = 0$ (d) None of these
17. x be a random variable which takes 0, 1, 2 and $p(x=0) = \frac{6}{25}$, $p(x=1) = \frac{10}{25}$, $p(x=2) = ?$
- (a) $\frac{8}{25}$ (b) $\frac{7}{25}$ (c) $\frac{9}{25}$ (d) None of these
18. The value of $\frac{1}{\log_a abc} + \frac{1}{\log_b abc} + \frac{1}{\log_c abc}$ is?
- (a) 2 (b) $\log_e 2$ (c) 1 (d) None of these
19. The Eq. of $7^{2x} - 8(7^x) + 7 = 0$ is
- (a) 1, 1 (b) 1, 2 (c) 0, 1 (d) None of these
20. Let the two set A & B then the value $(A \cup B) \cup (A' \cap B)$ is?
- (a) A' (b) B' (c) A (d) None of these
21. The reflection of the point (1,-2) W.r.t the line mirror $x = 0$ is
- (a) (2, 1) (b) (1, 2) (c) (0, 1) (d) None of these
22. If the average of the two number A & B is 75 and the average of the B & C is 60 and the average of C and A is 65. Then find the value of A is?
- (a) 60 (b) 70 (c) 80 (d) none
23. Which of the following set is finite set?
- (a) set of rivers of India (b) set of good leader
(c) The set of Intelligent students in the class (d) The set of rich people.

24. A Triangle is formed by the points (1, 2), (-2, -3) and (6, -2) If the point are shifted 2 units along y axis, area of the formed by the new point is,
- (a) $30/2$ Sq. unit (b) $39/2$ sq unit (c) 39 sq.unit (d) None of these
25. The no. of ways six people sit around table
- (a) 720 (b) 120 (c) 360 (d) 240
26. Equation of circle passing through (3, 4) and centre at origin is
- (a) $x^2 + y^2 = 9$ (b) $x^2 + y^2 = 16$ (c) $x^2 + y^2 = 25$ (d) $x^2 + y^2 = 36$
27. No. of solution of exp. of $3(2 \cos^2 x - 1) - 10 \cos x + 7 = 0$ in $[0, 2\pi]$
- (a) 2 (b) 3 (c) 4 (d) 5
28. A hemisphere bowl is made of steel of 0.25cm thickness. If the inner radius of the bowl is 5 cm, then the outer curved surface area of bowl,
- (a) 86.625 (b) 259.875 (c) 173.25 (d) 231
29. A takes 3 hour more than B in cover a distance of 60 Km. If A quadruples his speed than it would take 1 hour less. Then B then speed of A.
- (a) 7.50 (b) 11.25 (c) 6 (d) 3
30. The place on the system unit through which information and instruction flow to the computer system is represent to as a .
- (a) Port (b) Circuit (c) Bus (d) cord



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Answer Key



Mathematics

- | | | | | | | | | | |
|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|
| 01. (a) | 02. (d) | 03. (d) | 04. (a) | 05. (c) | 06. (b) | 07. (c) | 08. (a) | 09. (b) | 10. (a) |
| 11. (c) | 12. (a) | 13. (c) | 14. (b) | 15. (d) | 16. (a) | 17. (c) | 18. (c) | 19. (c) | 20. (d) |
| 21. (d) | 22. (c) | 23. (c) | 24. (d) | 25. (b) | 26. (c) | 27. () | 28. () | 29. () | 30. () |

INPS