

Set-A

- (1) If one end of a diameter of the circle $2x^2 + 2y^2 - 4x - 8y + 2 = 0$ is (3, 2), then the other end is _____
(a) (2,3) (b) (4,-2) (c) (2,-1) (d) (-1,2)
- (2) If the entries in a 3×3 determinant are either 0 or 1, then the greatest value of this determinant is _____
(a) 1 (b) 2 (c) 3 (d) 9
- (3) The area of the parallelogram whose diagonal are given by the vectors $3\hat{i} + \hat{j} - 2\hat{k}$ and $\hat{i} - 3\hat{j} + 4\hat{k}$ is _____
(a) $10\sqrt{3}$ (b) $5\sqrt{3}$ (c) 8 (d) 4
- (4) The angle between the planes $2x - y + z = 6$ and $x + y + 2z = 7$ is _____
(a) π (b) $2\frac{\pi}{3}$ (c) $\frac{\pi}{2}$ (d) $\frac{\pi}{3}$
- (5) Twelve students complete for a race. The number of ways in which first three places can be taken as _____
(a) $3!$ (b) $12 \times 11 \times 10$ (c) $\frac{12!}{3!}$ (d) $12! - 3!$
- (6) $\lim_{x \rightarrow 0} \frac{2(1 - \cos x)}{x^2}$ is _____
(a) $\frac{1}{2}$ (b) $\frac{1}{4}$ (c) 0 (d) 1
- (7) If $z(2 - i) = 3 + i$ then $z^{20} =$
(a) $1 - i$ (b) -1024 (c) 1024 (d) $1 + i$
- (8) The principal value of $\sin^{-1}\left(\sin \frac{5\pi}{3}\right)$ is
(a) $\frac{5\pi}{3}$ (b) $-\frac{5\pi}{3}$ (c) $-\frac{\pi}{3}$ (d) $\frac{4\pi}{3}$
- (9) If $x + y = 60$, $x, y > 0$, then maximum value of xy^3 is _____
(a) 30 (b) 60 (c) $15(45)^3$ (d) $45(15)^3$
- (10) The sum of divisors of $2^5 \cdot 3^7 \cdot 5^3 \cdot 7^2$ is _____
(a) $2^6 \cdot 3^8 \cdot 5^4 \cdot 7^3$ (b) $2^6 \cdot 3^6 \cdot 5^4 \cdot 7^3 - 2 \cdot 3 \cdot 5 \cdot 7$ (c) $2^6 \cdot 3^8 \cdot 5^4 \cdot 7^3 - 1$ (d) None of these

- (11) Constant term in the expansion of $\left(x - \frac{1}{x}\right)^{10}$ is
- (a) -252 (b) 152 (c) 252 (d) -152
- (12) The number of nonempty subsets of the set $\{1,2,3,4\}$ is _____
- (a) 15 (b) 14 (c) 16 (d) 17
- (13) The x - axis divides the line jointing the points (5, 7) and (-1, 3) in the ratio _____
- (a) 7 : 3 (b) 7 : - 3 (c) 6 : 5 (d) 6 : - 5
- (14) The number of bijective function (one one onto) form set A to itself when A contains 106 elements is _____
- (a) 106 (b) $(106)^3$ (c) $(206)!$ (d) 2^{106}
- (15) $\int \frac{\sin(\log x)dx}{x}$ is _____
- (a) $\cos(\log x)$ (b) $\sin(\log x)$ (c) $-\cos(\log x)$ (d) $-\sin(\log x)$
- (16) Sum of the n terms of the series $\sqrt{2} + \sqrt{8} + \sqrt{18} + \sqrt{32} + \dots$ is _____
- (a) $\frac{n(n+1)}{2}$ (b) $zn(n+1)$ (c) $\frac{n(n+1)}{\sqrt{2}}$ (d) 1
- (17) The value of $\cos \frac{2\pi}{5} \cos \frac{6\pi}{15} \cos \frac{8\pi}{15} \cos \frac{14\pi}{15}$ is _____
- (a) $\frac{1}{16}$ (b) $\frac{1}{8}$ (c) $\frac{3}{4}$ (d) $\frac{1}{12}$
- (18) $y^2 - 2x - 2y + 5 = 0$ is _____
- (a) A circle with centre (1, 1)
- (b) A parabola with vertices (1, 2)
- (c) A parabola with directrix $x = \frac{3}{2}$
- (d) A parabola with axis $x = \frac{-1}{2}$
- (19) Which one of the following measures of marks is the most suitable one of central location for computing intelligence of students?
- (a) Mode (b) Arithmetic (c) Geometric mean (d) Median
- (20) The domain of the function $f(x) = \sqrt{x-1} + \sqrt{6-x}$ is
- (a) (1∞) (b) $(-\infty, 6)$ (c) (16) (d) None of these

ANSWERS

1. (d), 2. (b), 3. (b), 4. (d), 5. (b), 6. (d), 7. (b), 8. (c), 9. (c), 10. (d), 11. (a), 12. (a), 13. (b),
14. (c), 15. (c), 16. (c), 17. (a), 18. (c), 19. (d), 20. (c)