Set – E

(1) The latus vectum of the parabola $x^2 - 4x - 2y - 8 = 0$ is _____

(a) 8 (b) 4 (c) 2 (d) 1

(2) For a 3×3 matrix A, if det A = 4, then $|AdjA|$ equals _____

(a) – 4 (b) 4 (c) 16 (d) 64

(3) If two vectors $\vec{a}$ and $\vec{b}$ be such that $|\vec{a}+\vec{b}| = |\vec{a}-\vec{b}|$, then the angle between $\vec{a}$ and $\vec{b}$ is ___

(a) 60^0 (b) 180^0 (c) 90^0 (d) 0^0

(4) If $\cos\alpha, \cos\beta, \cos\gamma$ are the direction cosines of a line, then the value of $\sin^2\alpha + \sin^2\beta + \sin^2\gamma$ is _____

(a) 1 (b) 2 (c) 3 (d) 4

(5) The maximum number of points of intersection of 8 circles is _____

(a) 16 (b) 24 (c) 28 (d) 56

(6) $\lim_{x\to 0} \frac{a^x - 1}{\sqrt{1+x} - 1}$ is equal to _____

(a) $2\log_e a$ (b) $\frac{1}{2}\log_e a$ (c) $a\log_e 2$ (d) None of these

(7) The smallest positive integer n for which $\left(\frac{1+i}{1-i}\right)^n = -1$ is _____

(a) 1 (b) 2 (c) 3 (d) 4

(8) If $\sin\left(\sin^{-1}\frac{1}{5} + \cos^{-1} x\right) = 1$, then x is equal to _____

(a) 1 (b) 0 (c) $\frac{4}{5}$ (d) $\frac{1}{5}$

(9) The minimum value of the function $y = 2x^3 - 21x^2 + 36x - 20$ is

(a) – 128 (b) – 126 (c) – 120 (d) None of these

(10) The number of different matrices that can be formed with elements 0, 1, 2, or 3 each having 4 elements is

(a) 3×2^4 (b) 2×4^4 (c) 3×4^4 (d) 4^4

(11) The number of terms in the expansion of $(2x+3y-4z)^n$ is _____

(a) $n+1$ (b) $n+3$ (c) $\frac{(n+1)(n+2)}{2}$ (d) None of these

(12) Let $n(u)=700$, $n(A)=200$, $n(B)=300$ and $n(A^c \cap B^c)$=_____

(a) 400 (b) 600 (c) 300 (d) 200

(13) Let $E=\{1,2,3,4\}$ and $F=\{1,2\}$ then the number of onto functions from E to F is _____

(a) 14 (b) 16 (c) 12 (d) 8

(14) The image of the point $(4,-13)$ in the line $5x+y+6=0$ is _____

(a) $(-1,-14)$ (b) $(3,4)$ (c) $(1,2)$ (d) $(-4,13)$

(15) $\int \sec^3 x\,dx$ is equal to _____

(a) $\frac{1}{2}\tan x \sec x$ (b) $\frac{1}{2}\log|\sec x+\tan x|$

(b) $\frac{1}{2}\sec x\tan x+\frac{1}{2}\log|\sec x+\tan x|$ (d) None of these.

(16) The number of ways in which four left terms of the word MATHEMATICS can be arranged is given by _____

(a) 136 (b) 192 (c) 1680 (d) 2454

(17) The line $3x-4y=\lambda$ touches the circle $x^2+y^2-4x-8y-5=0$ if the value of λ is

(a) 20 (b) 15 (c) 10 (d) 5

(18) $\int_0^{\pi} \sin^2\left(x/2\right)dx$ equals _____

(a) $\frac{16}{15}$ (b) $\frac{32}{15}$ (c) $\frac{8}{15}$ (d) $\frac{5}{6}$

(19) The value of λ for which the equation $x^2 - \lambda xy + 2y^2 + 3x - 5y + 2 = 0$ may represent a pair of straight lines is _____

(a) 2 (b) 3 (c) 4 (d) 1

(20) If the sum of two unit vectors is a unit vector, then the magnitude of their difference is _____

(a) $\sqrt{2}$ (b) $\sqrt{3}$ (c) 2 (d) $\sqrt{5}$

ANSWERS:

1. (c), 2. (c), 3. (c), 4. (b), 5. (d), 6. (a), 7. (b), 8. (d), 9. (a), 10. (d), 11. (c), 12. (c), 13. (a),

14. (a), 15. (c), 16. (d), 17. (b), 18. (a), 19. (b), 20. (b).