MATHS

BOOKS - MTG WBJEE MATHS (HINGLISH)

MODEL TEST PAPER 3

Category 1 Single Option Correct Type

1. Ten different letters of an alphabet are given. Words with five letters are formed from these given letters. Determine the number4 of words which have at least one letter repeated.

A. 69760

B. 24320

C. 99777

D. none of these

Answer: A

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2. The interior angles of a regular polygon measure 120° each. The number of diagonal of the polygon

A. 9

B. 15

C. 44

D. 33

Answer: A

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3. All x satisfying the inequnality $\left(\cot^{-1} x\right)^2 - 7\left(\cot^{-1} x\right) + 10 > 0$ lie in the inteval

A. $(\cot 5, \cot 2)$

B. $(-\infty, \cot 5) \cup (\cot 2, \infty)$

C. $(-\infty, \cot 5)$

D. $(\cot 2, \infty)$

Answer: B

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4. The expression

$\left[x + \left(x^3 - 1\right)^{\frac{1}{2}}\right]^5 + \left[x - \left(x^3 - 1\right)^{\frac{1}{2}}\right]^5$ is a polynomial of degree

A. 15

B. 7

C. 6

D. 5

Answer: B

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5. If z_1, z_2, z_3 represent the vertices of a triangle, then the centroid of the triangle is given by

A. $\frac{az_1 + bz_2 + cz_3}{a + b + c}$

B. $\frac{z_1 + z_2 + z_3}{3}$

C. $\frac{z_1 z_2 z_3}{3}$

D. none of these

Answer: B

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6. If $0 < \alpha < \pi$, then the quadratic question $\cos(\alpha - 1)x^2 + x\cos\alpha + \sin\alpha = 0$, has

A. both roots imaginary

B. only one root imaginary

C. only one root irrational

D. none of these

Answer: D

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7. The expression $\frac{1}{\tan x + \cot x + \sec x + \operatorname{cosec} x}$ equivalent to

A. $\frac{1}{2(\sin x + \cos x - 1)}$

B. $\frac{(\sin x + \cos x - 1)}{2}$

C. $\frac{1}{2(\sin x - \cos x + 1)}$

D. $\frac{(\sin x - \cos x + 1)}{2}$

Answer: B

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8. If $\theta \in \left(\frac{\pi}{4}, \frac{\pi}{2}\right)$ and $f(\theta) = \sec 2\theta - \tan 2\theta$, then $f\left(\frac{\pi}{4} - \theta\right) =$

A. $\tan\theta$

B. $\cot\theta$

C. $\sec 2\theta$

D. $\tan 2\theta$

Answer: A

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9. In a ΔABC, the value of $\frac{a\cos A + b\cos B + c\cos C}{a+b+c}$ is equal to

A. $\sin A$

B. $A\sin\frac{A}{2}\sin\frac{B}{2}\sin\frac{C}{2}$

C. $\sin\frac{C}{2}$

D. none of these

Answer: B

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10. If $\int_0^x f(z)dz = x + \int_x^1 zf(z)dz$, then $\int_1^2 f(x)dx$ equals

A. $1 + x$

B. $\log\left(\frac{2}{3}\right)$

C. $\log 3$

D. $\log\left(\frac{3}{2}\right)$

Answer: D

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11. A line line makes the same angle θ with each of the x and z-axes. If the angle β, which it makes with y-axis, is such that $\sin^2\beta = 3\sin^2\theta$ then $\cos^2\theta$ equals

A. $3/5$

B. $1/5$

C. $2/3$

D. $2/5$

Answer: A

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12. $\int_{\pi/6}^{\pi/3} \frac{\sqrt{\sin x}}{\sqrt{\sin x}+\sqrt{\cos x}}dx = \frac{k}{4}$, then the value of k equals

A. $\pi/12$

B. $\pi/3$

C. $\pi/2$

D. none of these

Answer: B

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13. $\lim_{x->0}\left(\frac{\log(1+x^3)}{\sin^3 x}\right.$

A. 1

B. 0

C. -1

D. none of these

Answer: A

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14. $\cos^2 A+\cos^2(B-A)-2\cos A\cos B\cos(A-B)=$

A. $\cos 2A$

B. $\sin^2 A$

C. $\sin^2 B$

D. $\cos^2 B$

Answer: C

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15. Find the domain of function $f(x) = (\log)_4\left[(\log)_5\left\{(\log)_3\left(18x - x^2 - 77\right\}\right]\right.$

A. x in $(4, 5)$

B. x in $(0, 10)$

C. x in $(8, 10)$

D. none of these

Answer: C

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16. The order anda degree of the differential equation of all tangent lines to the parabola $x^2 = 4y$ is

A. 2, 2

B. 3, 1

C. 1, 2

D. 4, 1

Answer: C

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17. The area enclosed between the curves $y^2 = x \text{ and } y = |x|$ is

A. $1/6$

B. $1/3$

C. $2/3$

D. 1

Answer: A

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18. Let f be differentiable for all x, If $f(1) = -2 and f'(x) \geq 2$ for all $x \in [1, 6]$, then find the range of values of $f(6)$.

A. $f(6) < 8$

B. $f(6) \geq 8$

C. $f(6) = 5$

D. $f(6) < 5$

Answer: B

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19. If $e^y + xy = e$, then: $\left[\frac{d^2y}{dx^2}\right]_{x=0}$ is equal to

A. $1/e$

B. $1/e^3$

C. $1/e^2$

D. none of these

Answer: C

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20. $\int \cos\sqrt{x}dx$ is equal to

A. $-\dfrac{\sin\sqrt{x}}{2\sqrt{x}}+c$

B. $\sqrt{x}\sin\sqrt{x}+\cos\sqrt{x}+c$

C. $2\left(\sqrt{x}\sin\sqrt{x}+\cos\sqrt{x}\right)+c$

D. $2\left(\sqrt{x}\sin\sqrt{x}-\cos\sqrt{x}\right)+c$

Answer: C

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21. If $f(x+y)=f(x)+f(y)-xy-1 \forall x, y \in R and f(1)=1,$ then the number of solution of $f(n)=n, n \in N,$ is 0 (b) 1 (c) 2 (d) more than 2

A. 0

B. 1

C. 2

D. none of these

Answer: B

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22. In a survery it is to be found that $70\ \%$ of employees like bananas and $64\ \%$ like apples. If $x\ \%$ like both bananas and apples, then

A. $x \geq 34$

B. $x \leq 64$

C. $34 \leq x \leq 64$

D. all of these

Answer: D

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23. If a relation R is defined from a set $A = \{2, 3, 4, 5\}$ to a set $B = \{3, 6, 7, 10\}$ as follows $(x, y) \in R \Leftrightarrow x$ divides y. Expression of R^{-1} is represented by

A. $\{(6, 2), (10, 2), (3, 3)\}$

B. $\{(6, 2), (10, 5), (3, 3)\}$

C. $\{(6, 2), (10, 2), (3, 3), (6, 3), (10, 5)\}$

D. none of these

Answer: C

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24. The consists of 6 multiple choice questions, each having 4 alternative answers of wihc only one is correct. The number of ways, in which a canditate answers all six questions such that exactly four of the answers are correct, is _____.

A. $4^6 - 3^2$

B. 135

C. 55

D. 120

Answer: B

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25. An eppipse of eccentricity $\frac{2\sqrt{2}}{3}$ is inscribed in a circle and a point within the circle is chosen at random. The probability that this point lies

outside the ellipse is

A. $1/9$

B. $4/9$

C. $1/3$

D. $2/3$

Answer: D

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26. Consider the point $A = (3, 4), B(7, 13)$. If 'P' be a point on the line $y = x$ such that $PA + PB$ is minimum then coordinates of P is (A) $\left(\frac{13}{7}, 13, 7\right)$ (B) $\left(\frac{23}{7}, \frac{23}{7}\right)$ (C) $\left(\frac{31}{7}, \frac{31}{7}\right)$ (D) $\left(\frac{33}{7}, \frac{33}{7}\right)$

A. $\left(\frac{2}{7}, \frac{12}{7}\right)$

B. $\left(\frac{13}{7}, \frac{13}{7}\right)$

C. $\left(\frac{23}{7}, \frac{23}{7}\right)$

D. none of these

Answer: D

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27. if the difference of the roots of the equation $x^2 + ax + b = 0$ is equal to the difference of the roots of the equation $x^2 + bx + a = 0$,then

A. $a + b = 4$

B. $a + b = -4$

C. $a - b = 4$

D. $a - b = -4$

Answer: B

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28. $\Delta = \begin{vmatrix} \cos\frac{\theta}{2} & 1 & 1 \\ 1 & \cos\frac{\theta}{2} & -\cos\frac{\theta}{2} \\ -\cos\frac{\theta}{2} & 1 & 1 \end{vmatrix}$ lies in the interval

A. $[2, 4]$

B. $[0, 4]$

C. $[1, 3]$

D. $[-2, 2]$

Answer: A

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29. The values of α for which the system of equations $\alpha x - 3y + z = 0, x + \alpha y + 3z = 1, 3x + y + 5z = 2,$ does not have unique solution are

A. $-1, \frac{11}{5}$

B. $-1, \frac{-11}{5}$

C. $1, \frac{-11}{5}$

D. $1, \frac{11}{5}$

Answer: A

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30. If $\vec{a}, \vec{b}, \vec{c}$ are vectors of equal magnitudes and each of them inclined of 60° each others. If $\left|\vec{a}+\vec{b}+\vec{c}\right| = \sqrt{6}$, then find $\left|\vec{a}\right|$.

A. 2

B. -1

C. 1

D. $\frac{1}{3}\sqrt{6}$

Answer: C

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31. Find the coordinates of points on the parabola $y^2 = 8x$ whose focal distance is 4.

A. $\left(\frac{1}{2}m, \pm 2\right)$

B. $\left(1, \pm 2\sqrt{2}\right)$

C. $(2, \pm 4)$

D. $(\pm 2, 4)$

Answer: C

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32. If $b_1, b_2, b_3, \ldots.$ belongs to an A.P. such that $b_1 + b_4 + b_7 + \ldots + b_{28} = 220$, then the value of $b_1 + b_2 + b_3 + \ldots + b_{28} =$

A. 616

B. 308

C. 2200

D. 1232

Answer: A

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33. The middle term in the expansion of $\left(1-3x+3x^2-x^3\right)^{2n}$ is

A. $\frac{6n!}{3n!3n!}x^n$

B. $\frac{6n!}{3n!}x^{3n}$

C. $\frac{6n!}{3n!3n!}(-x)^{3n}$

D. none of these

Answer: C

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34. Solve $\left(x^2+y^2dx-2xydy=0.\right.$

A. $\frac{x}{x^2+y^2}=c$

B. $\frac{x^2+y^2}{x}=c$

C. $\frac{y^2-x^2}{x}=c$

D. $\frac{x^2-y^2}{x}=c$

Answer: D

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35. The number of vectors of unit length perpendicular to vector $\vec{a}\equiv(5,6,0)$ and $\vec{b}\equiv(6,5,0)$ is

A. 1

B. 4

C. 3

D. 2

Answer: D

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36. If the eccentricity of the hyperbola $x^2 - y^2 \sec^2\theta = 4$ is $\sqrt{3}$ times the eccentricity of the ellipse $x^2 \sec^2\theta + y^2 = 16$, then the value of θ equals

A. $\pi/6$

B. $3\pi/4$

C. $\pi/3$

D. $\pi/2$

Answer: B

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37. The angle subtended by common tangents of two ellipses $4(x-4)^2 + 25y^2 = 100$ and $4(x+1)^2 + y^2 = 4$ at the origin (in

degrees) is (A) 30 (B) 45 (C) 60 (D) 90

A. $\pi/3$

B. $\pi/4$

C. $\pi/2$

D. none of these

Answer: C

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38. If the trace of the matrix $A = \begin{pmatrix} x-5 & 0 & 2 & 4 \\ 3 & x^2-10 & 6 & 1 \\ -2 & 3 & x-7 & 1 \\ 1 & 2 & 0 & -2 \end{pmatrix}$ assumes the value zero, then the value of x equals to

A. $-6, -4$

B. $-6, 4$

C. 6, 4

D. $6, -4$

Answer: B

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39. The number of tangents to the curve $x^{2/3} + y^{2/3} = a^{2/3}$ which are equally inclined to the axes is

A. 4

B. 3

C. 2

D. 1

Answer: A

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40. The odds against A solving a certain problem are 3 to 2 and the odds in favour of B solving the same are 2 to 1. The probability that the problem will be solved if they both try, is

A. $\frac{2}{5}$

B. $\frac{11}{15}$

C. $\frac{4}{5}$

D. $\frac{2}{3}$

Answer: C

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41. Six coins are tossed simultaneously. The probability atleast one tail turns up, is

A. $\frac{63}{64}$

B. $\frac{1}{64}$

C. $\frac{3}{32}$

D. none of these

Answer: A

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42. It is given that the events A and B are such that $P(A)=\frac{1}{4}, P\left(\frac{A}{B}\right)=\frac{1}{2} \text{and} p\left(\frac{B}{A}\right)=\frac{2}{3}$. Then P(B) is: (1) $\frac{1}{6}$ (2) $\frac{1}{3}$ (3) $\frac{2}{3}$ (4) $\frac{1}{2}$

A. $1/3$

B. $2/3$

C. $1/2$

D. $1/6$

Answer: A

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43. Let $P(n): 2^{n_{>}} n \forall n \in N$ and $2 > k, Aan = k$, then which of the following is true? $(k \geq 2)$

A. $2^k > 5k > 1$

B. $2^{k+1} > 2k > k + 1$

C. $2^6 > 2(k + 1) > k$

D. none of these

Answer: B

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44. If $z \neq 0$, then $\int_0^{50} arg(-|z|)dx =$

A. 50

B. not defined

C. 0

D. 50π

Answer: D

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45. The number of values of θ in $[0, 2\pi]$ that satisfy the equation $3\cos 2\theta + 13\sin\theta - 8 = 0$ is

A. 1

B. 2

C. 3

D. 4

Answer: B

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46. If $A = \{a, b, c, d\}$ and $B = \{x, y, z\}$, then which one of the following relations from A to B is not a mapping?

A. $\{(a, x), (b, y), (c, z), (d, x)\}$

B. $\{(a, y), (b, y), (c, x), (d, z)\}$

C. $\{(b, x), (c, x), (d, z), (a, y)\}$

D. $\{(b, x), (a, y), (b, z), (c, z)\}$

Answer: D

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47. In a moderately asymmetrical distribution, the mean is 18 and median 22, the value of mode is

A. 30

B. 10

C. 4

D. none of these

Answer: A

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48. Let $\vec{V} = 2\hat{i} + \hat{j} - \hat{k}$ and $\vec{W} = \hat{i} + 3\hat{k}$. It $\vec{U}$ is a unit vector, then the maximum value of the scalar triple product $\left[\vec{U} \quad \vec{V} \quad \vec{W}\right]$ is

A. -1

B. $\sqrt{10} + \sqrt{6}$

C. $\sqrt{59}$

D. $\sqrt{60}$

Answer: C

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49. If the coefficient of variation of some observation is 60 and their standard deviation is 20, then their mean is

A. 35

B. 34

C. 38.3

D. 33.33

Answer: D

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50. If ω is a cube root of unity, then $\tan\left\{\left(\omega^{200}+\frac{1}{\omega^{200}}\right)\pi+\frac{\pi}{4}\right\}=$

A. 1

B. $\frac{1}{\sqrt{2}}$

C. 0

D. none of these

Answer: A

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Category 2 Single Option Correct Type

1. In a G.P. of positive terms if any terms is equal to the sum of next tow terms, find the common ratio of the G.P.

A. $\cos 18^\circ$

B. $\sin 18^\circ$

C. $2\cos 18^\circ$

D. $2\sin 18^\circ$

Answer: D

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2. The equation $(x+y=6)(xy-3x-y+3=0)$ represents the sides of a triangle then the equation of the circumcircle of the triangle is

A. $x^2+y^2-5x-9y+20=0$

B. $x^2+y^2-4x-8y+18=0$

C. $x^2+y^2-3x-5y+8=0$

D. $x^2+y^2+2x-3y-1=0$

Answer: B

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3. The derivative of the function,

$$f(x)=\cos^{-1}\left\{\frac{1}{\sqrt{13}}(2\cos x-3\sin x)\right\}+\sin^{-1}\left\{\frac{1}{\sqrt{13}}(2\cos x+3\sin x)\right.$$

is

A. $2x$

B. $2\sqrt{1+x^2}$

C. $\frac{2}{x}\sqrt{1+x^2}$

D. $\frac{2x}{\sqrt{1+x^2}}$

Answer: C

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4. Let f''(x) be continuous at x = 0 and f''(0) = 4 then value of $\lim_{x \to 0} \frac{2f(x) - 3f(2x) + f(4x)}{x^2}$

A. 11

B. 2

C. 12

D. none of these

Answer: C

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5. Let g(x)=$f(x)+f'(1-x)$ and $f''(x)<0, 0\leq x\leq 1$ Then

A. $\phi(x)$ decreases in (0, 1)

B. $\phi(x)$ increases in (0, 1)

C. $\phi(x)$ decreases in $(0, 1/2)$

D. none of these

Answer: D

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6. If m is the AM of two distinct real numbers l and n $(l, n>1)$ and G_1, G_2 and G_3 are three geometric means between l and n, then $G_1^4, 2G_2^4, G_3^4$ equals

A. $4lmn^2$

B. $4l^2m^2n^2$

C. $4l^2mn$

D. $4lm^2n$

Answer: D

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7. Let α and β be the roots of the equation $x^2 - 6x - 2 = 0$ If $a_n = \alpha^n - \beta^n$ for $n \geq 0$ then find the value of $\frac{a_{10} - 2a_8}{2a_9}$

A. 3

B. -3

C. 6

D. -6

Answer: A

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8. The relation $'R'$ in $N \times N$ such that $(a,\ b)\ R\ (c,\ d) \Leftrightarrow a + d = b + c$ is reflexive but not symmetric reflexive and transitive but not symmetric an equivalence relation (d) none of these

A. reflexive but not symmetric

B. reflexive and transitive but not symmetric

C. an equivalence relation

D. none of these

Answer: C

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9. In a competitive examination, an examinee either guesses or copies or knows the answer to amultiple choice question with four choices. The probability that he makes a guess is $\frac{1}{3}$ and the probability that he copies the answer is 1/6. The probability that the answer is correct, given that he

copiedit, is $\frac{1}{8}$. Find the probability that he knows the answer to the question, given that he correctly answered

A. $\frac{23}{29}$

B. $\frac{27}{29}$

C. $\frac{24}{29}$

D. $\frac{25}{29}$

Answer: C

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10. If $\tan^{-1} y = \tan^{-1} x + \tan^{-1}\left(\frac{2x}{1-x^2}\right)$, where $|x| < \frac{1}{\sqrt{3}}$.

Then, the value of y is

A. $\frac{3x - x^3}{1 + 3x^2}$

B. $\frac{3x + x^3}{1 + 3x^2}$

C. $\frac{3x - x^3}{1 - 3x^2}$

D. $\frac{3x + x^3}{1 - 3x^2}$

Answer: C

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11. Let a and b be two non -zero reals such that $a \neq b$. Then the equation of the line passing through origin and point of intersection of $\frac{x}{a} + \frac{y}{b} = 1$ and $\frac{x}{b} + \frac{y}{a} = 1$ is

A. $ax + by = 0$

B. $bx + ay = 0$

C. $y - x = 0$

D. $x + y = 0$

Answer: C

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12. If $f(x) = \dfrac{\sin\left(2\pi\left[\pi^2 x\right]\right)}{5 + [x]^2}$, ($[\cdot]$ denotes the greatest integer function),

Then the f(x) is

A. discontinuous at some x

B. continuous at all x, but the derivative f'(x) doesn't exist for some x

C. f''(x) does not exist for all x

D. none of these

Answer: D

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13. If $\int \dfrac{dx}{x^{22}(x^7 - 6)} = A\left\{\ln(p)^6 + 9p^2 - 2p^3 - 18p\right\} + c$, then

A. $A = \dfrac{1}{9072}, p\left(\dfrac{x^7 - 6}{x^7}\right)$

B. $A = \dfrac{1}{54432}, p\left(\dfrac{x^7 - 6}{x^7}\right)$

C. $A = (54432), p\left(\dfrac{x^7}{x^7 - 6}\right)$

D. $A = \dfrac{1}{9072}, p = \left(\dfrac{x^7 - 6}{x^7}\right)^{-1}$

Answer: B

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14. Solution of the differential equation $\left(\frac{x+y-1}{x+y-2}\right)\frac{dy}{dx} = \left(\frac{x+y+1}{x+y+1}\right)$, given that y = 1 when x = 1, is

A. $\log\left|\frac{(x-y)^2-2}{2}\right| = 2(x+y)$

B. $\log\left|\frac{(x-y)^2+2}{2}\right| = 2(x-y)$

C. $\log\left|\frac{(x+y)^2+2}{2}\right| = 2(x-y)$

D.

Answer: D

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15. The minimum value of $px + py$ when $xy = r^2$ is equal to

A. $2r\sqrt{pq}$

B. $2pr\sqrt{r}$

C. $-2r\sqrt{pq}$

D. none of these

Answer: A

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Category 3 One Or More Than One Option Correct Type

1. If the vectors $\vec{a}, \vec{b}, \vec{c}, \vec{d}$ are any four vectors, then $\left(\vec{a} \times \vec{b}\right).\left(\vec{c} \times \vec{d}\right)$ is equal to

A. $\vec{a}.\left\{\left(b \times \left(\vec{c} \times \vec{d}\right)\right\}\right.$

B. $\left(\vec{a}.\vec{c}\right)\left(\vec{b}.\vec{d}\right) - \left(\vec{a}.\vec{d}\right)\left(\vec{b}.\vec{c}\right)$

C. $\left\{\left(\vec{a} \times \vec{b}\right) \times \vec{c}\right\}.\vec{d}$

D. $\left(\overrightarrow{dx}\overrightarrow{c}\right).\left(\overrightarrow{b}\times\overrightarrow{a}\right)$

Answer: A::B::C::D

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2. Let z_1, z_2 be two complex numbers represented by points on the circle $|z_1| = \quad \text{and} \quad \text{and} \quad |z_2| = 2$ are then

A. $\max |2z_1 + z_2| = 4$

B. $\min |z_1 - z_2| = 1$

C. $\left|z_2 + \frac{1}{z_1}\right| \leq 3$

D. none of these

Answer: A::B::C

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3. If ΔABC, if $\frac{\cos A}{2} = \sqrt{\frac{b+c}{2c}}$, then

A. area of the triangle is $\frac{1}{2}ab$

B. circumradius is equal to $\frac{1}{2}c$

C. area of the triangle is $\frac{1}{2}bc$

D. circumradius is equal to $\frac{1}{2}a$

Answer: A::B

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4. In the expansion of $(x+y+z)^{25}$

A. every term is of the form ${}^{25}C_r . {}^{r}C_{kj} . X^{25-r} . Y^{r-k} z^k$

B. the coefficient of $x^8 y^9 z^9$ is zero

C. the number of terms is 325

D. none of these

Answer: A::B

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5. $\begin{vmatrix} x^2 & y^2+z^2 & yz \\ y^2 & z^2+x^2 & zx \\ z^2 & x^2+y^2 & xy \end{vmatrix}$ is divisible by

A. $x^2+y^2+z^2$

B. $x-y$

C. $x-y-z$

D. $x+y+z$

Answer: A::B::D

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6. A function f(x) is defined in the interval [1,4) as follows $f(x)=\begin{cases} \log_e[x] & 1 \le x < 3 \\ |\log_e x| & 3 \le x < 4 \end{cases}$. Then, the curve y=f(x)

A. is broken at two points

B. is broken at exactly at one point

C. does not have a definite tangent at two points

D. does not have a definite tangent at more than two points.

Answer: A::C

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7. A coin is tossed repeatedly. A and B call alternately for winning a prize of Rs 30. One who calls correctly first wins the prize. A starts the call. Then the expectationof

A. A is Rs. 10

B. B is Rs. 10

C. A is Rs. 20

D. B is Rs. 20

Answer: B::C

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8. The function $f(x) = x^2 + \frac{\lambda}{x}$ has a minimum at $x = 2$ if $\lambda = 16$ maximum at $x = 2$ if $\lambda = 16$ maximum for no real value of λ point of inflection at $x = 1$ if $\lambda = -1$

A. minimum at x = 2 if $\lambda = 16$

B. maximum at x = 2 if $\lambda = 16$

C. maximum for no real value of λ

D. point of inflection at x = 1 if $\lambda = -1$

Answer: A::C::D

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9. Let $I_n = \int_0^{\pi/4} \tan^n x dx, n \in N$, Then

A. $I_1 = I_3 + 2I_5$

B. $I_n + I_{n-2} = \frac{1}{n}$

C. $I_n + I_{n-2} = \frac{1}{n-1}$

D. none of these

Answer: A::C

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10. Let

$f(x) = x^2 + xg'(1) + g''(2)$ and $g(x) = f(1).\, x^2 + xf'(x) + f''(x)$

then

A. $f'(1) + f'(2) = 0$

B. $g'(2) = g'(1)$

C. $g''(2) + f''(3) = 6$

D. none of these

Answer: A::B

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