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Indira Award Winner
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$$d = \sqrt{(x_2 - x_1)^2 + (y_2 - y_1)^2}$$



MULTIPLE CHOICE TYPE QUESTIONS

For CBSE 2027 Exams - Mathematics (041) - Class 12

Chapter 01 - Matrices & Determinants

Select the correct option (s) in the followings.

Q01. If A and B are two matrices such that $A + B$ and AB are both defined, then

- (a) A and B can be any matrices
- (b) A and B are square matrices not necessarily of same order
- (c) Number of columns in A = Number of rows in B
- (d) A and B are square matrices of same order.

Q02. If $A = \begin{bmatrix} 2 & -1 \\ 3 & 1 \end{bmatrix}$ then, AA^T is equal to

- (a) $\begin{bmatrix} 5 & 5 \\ 10 & 5 \end{bmatrix}$
- (b) $5 \begin{bmatrix} 1 & 1 \\ 1 & 2 \end{bmatrix}$
- (c) $5 I_2$
- (d) $\begin{bmatrix} 1 & 1 \\ 1 & 2 \end{bmatrix}$

Q03. Let $|A| = \begin{vmatrix} a & b & c \\ d & e & f \\ g & h & i \end{vmatrix} = 4$. Then $|\text{adj.}A| =$

- (a) 16
- (b) 2 only
- (c) -2 only
- (d) -16

Q105. If $\begin{bmatrix} x & 2 \\ 3 & x-1 \end{bmatrix}$ is a singular matrix, then the product of all possible values of x is

- (a) 6
- (b) -6
- (c) 0
- (d) -7

Q106. If $\left| \frac{A^{-1}}{2} \right| = \frac{1}{k|A|}$, where A is a 3×3 matrix, then the value of k is

- (a) $\frac{1}{8}$
- (b) 8
- (c) 2
- (d) $\frac{1}{2}$

Q107. If $A = \begin{bmatrix} 0 & 1 \\ 0 & 0 \end{bmatrix}$, then A^{2023} is equal to

- (a) $\begin{bmatrix} 0 & 1 \\ 0 & 0 \end{bmatrix}$
- (b) $\begin{bmatrix} 0 & 2023 \\ 0 & 0 \end{bmatrix}$
- (c) $\begin{bmatrix} 0 & 0 \\ 0 & 0 \end{bmatrix}$
- (d) $\begin{bmatrix} 2023 & 0 \\ 0 & 2023 \end{bmatrix}$

Q108. If $\begin{bmatrix} 2 & 0 \\ 5 & 4 \end{bmatrix} = P + Q$, where P is a symmetric and Q is a skew symmetric matrix, then $Q =$

- (a) $\begin{bmatrix} 2 & 5/2 \\ 5/2 & 4 \end{bmatrix}$
- (b) $\begin{bmatrix} 0 & -5/2 \\ 5/2 & 0 \end{bmatrix}$
- (c) $\begin{bmatrix} 0 & 5/2 \\ -5/2 & 0 \end{bmatrix}$
- (d) $\begin{bmatrix} 2 & -5/2 \\ 5/2 & 4 \end{bmatrix}$

Q110. If $|A| = |kA|$, where A is a square matrix of order 2, then sum of all possible value of k is

- (a) 1
- (b) -1
- (c) 2
- (d) 0

Q111. Number of symmetric matrices of order 3×3 with each entry 1 or -1 is

- (a) 512
- (b) 64
- (c) 8
- (d) 4

Q112. If $A = \begin{bmatrix} 1 & 4 & x \\ z & 2 & y \\ -3 & -1 & 3 \end{bmatrix}$ is a symmetric matrix, then the value of $x + y + z$ is

- (a) 10 (b) 6 (c) 8 (d) 0

Q113. Let A be the area of a triangle having vertices (x_1, y_1) , (x_2, y_2) and (x_3, y_3) . Which of the following is correct?

- (a) $\begin{vmatrix} x_1 & y_1 & 1 \\ x_2 & y_2 & 1 \\ x_3 & y_3 & 1 \end{vmatrix} = \pm A$ (b) $\begin{vmatrix} x_1 & y_1 & 1 \\ x_2 & y_2 & 1 \\ x_3 & y_3 & 1 \end{vmatrix} = \pm 2A$
 (c) $\begin{vmatrix} x_1 & y_1 & 1 \\ x_2 & y_2 & 1 \\ x_3 & y_3 & 1 \end{vmatrix} = \pm \frac{A}{2}$ (d) $\begin{vmatrix} x_1 & y_1 & 1 \\ x_2 & y_2 & 1 \\ x_3 & y_3 & 1 \end{vmatrix}^2 = A^2$

Q114. Let A be a skew-symmetric matrix of order 3. If $|A| = x$, then $(2023)^x$ is equal to

- (a) 2023 (b) $\frac{1}{2023}$ (c) $(2023)^2$ (d) 1

Q116. The value of $\begin{vmatrix} x+y & y+z & z+x \\ z & x & y \\ 1 & 1 & 1 \end{vmatrix}$ is

- (a) 0 (b) 1 (c) $x + y + z$ (d) $2(x + y + z)$

Q120. If (a, b) , (c, d) and (e, f) are the vertices of ΔABC and Δ denotes the area of ΔABC , then

$\begin{vmatrix} a & c & e \\ b & d & f \\ 1 & 1 & 1 \end{vmatrix}$ is equal to

- (a) $2\Delta^2$ (b) $4\Delta^2$ (c) 2Δ (d) 4Δ

Q157. If M is a diagonal matrix of order 3 with all the principal diagonal elements equal to p , where $p \neq 0$, then the determinant of M^{-1} =

- (a) p^3 (b) 0 (c) 1 (d) p^{-3}

Q158. The number of all non-zero Scalar matrices of order 3, with each entry $-1, 0$ or 1 , is

- (a) 1 (b) 3 (c) 2 (d) 3^9

Chapter 02 - Relations & Functions

 Select the correct option (s) in the followings.

Q01. The relation $R = \{(1, 2)\}$ on $A = \{1, 2, 3\}$ is

- (a) Reflexive only
 (b) Symmetric only
 (c) Transitive only
 (d) Equivalence i.e., reflexive, symmetric and transitive

Q03. Let $f : A \rightarrow B$ be a one-one function s.t. range of f is $\{b\}$. Then the value of $n(A)$ is

- (a) 1 (b) 2 (c) 0 (d) 4

- Q14.** For real numbers x and y , define xRy if and only if $x - y + \sqrt{2}$ is an irrational number. Then the relation R is
 (a) only reflexive (b) only symmetric (c) only transitive (d) equivalence
- Q36.** Let R be the relation in the set \mathbb{N} given by $R = \{(a, b) : a = b - 2, b > 6\}$.
 Which of the following is true?
 (a) $(2, 4) \in R$ (b) $(3, 8) \in R$ (c) $(6, 8) \in R$ (d) $(8, 7) \in R$
- Q37.** If $f(x) = |\cos x|$, then $f\left(\frac{3\pi}{4}\right)$ is
 (a) 1 (b) -1 (c) $-\frac{1}{\sqrt{2}}$ (d) $\frac{1}{\sqrt{2}}$
- Q46.** A function $f : \mathbb{R} \rightarrow \mathbb{R}$ defined as $f(x) = x^2 - 4x + 5$ is
 (a) injective but not surjective (b) surjective but not injective
 (c) both injective and surjective (d) neither injective nor surjective

Chapter 03 - Inverse Trigonometric Functions

 Select the correct option (s) in the followings.

- Q01.** The value of $\cos^{-1}(-1) - \sin^{-1}(1)$ is
 (a) π (b) $\frac{\pi}{2}$ (c) $\frac{3\pi}{2}$ (d) $-\frac{3\pi}{2}$
- Q20.** If $\tan^{-1}x = \frac{\pi}{10}$, for some $x \in \mathbb{R}$, then the value of $\cot^{-1}x$ is
 (a) $\frac{\pi}{5}$ (b) $\frac{2\pi}{5}$ (c) $\frac{3\pi}{5}$ (d) $\frac{4\pi}{5}$
- Q23.** The domain of the function defined by $f(x) = \sin^{-1}x + \cos x$ is
 (a) $[-1, 1]$ (b) $[-1, \pi + 1]$ (c) $(-\infty, \infty)$ (d) ϕ
- Q28.** The range of $f(x) = \frac{1}{2}\sin^{-1}2x$ is
 (a) $\left[-\frac{\pi}{2}, \frac{\pi}{2}\right]$ (b) $[-1, 1]$ (c) $\left\{\frac{\pi}{2}\right\}$ (d) $\left[-\frac{\pi}{4}, \frac{\pi}{4}\right]$
- Q35.** If $y = \sin x$ is invertible i.e., inverse of $y = \sin x$ exists, then which of the following is correct?
 (a) $x \in \left(-\frac{\pi}{2}, \frac{\pi}{2}\right), y \in [-1, 1]$ (b) $x \in \left[\frac{\pi}{2}, \frac{3\pi}{2}\right], y \in [-1, 1]$
 (c) $x \in [-1, 1], y \in \left[-\frac{\pi}{2}, \frac{\pi}{2}\right]$ (d) $x \in \mathbb{R}, y \in \left[\frac{\pi}{2}, \frac{3\pi}{2}\right]$
- Q37.** Let $m = \cos^{-1}\left(-\frac{\sqrt{2}}{2}\right)$ and $n = \sin^{-1}\left(-\frac{\sqrt{2}}{2}\right)$. Then $(m+n)^{\frac{\pi+n}{4}} =$
 (a) 0 (b) 1 (c) $\frac{\pi}{2}$ (d) $-\frac{\pi}{2}$
- Q38.** If $\frac{\pi}{4} < x < \frac{\pi}{2}$, then $\tan^{-1}\left(\frac{1+\tan x}{1-\tan x}\right) =$

- (a) $\frac{\pi}{4} + x$ (b) $\frac{\pi}{4} - x$ (c) $\frac{3\pi}{4} - x$ (d) $x - \frac{3\pi}{4}$
- Q41.** If $\sin^{-1} \left[k \tan \left(2 \cos^{-1} \frac{\sqrt{3}}{2} \right) \right] = \frac{\pi}{3}$, then the value of k is
- (a) 1 (b) $-\frac{1}{2}$ (c) $\frac{1}{2}$ (d) $\frac{\sqrt{3}}{2}$

Chapter 04 - Continuity & Differentiability

 Select the correct option (s) in the followings.

- Q01.** Value of $\frac{d}{dx} \left(\sin^{-1} \frac{x}{3} + \cos^{-1} \frac{x}{3} \right)$ is equal to
- (a) 0 (b) $\frac{1}{3}$ (c) 3 (d) Not possible to find
- Q17.** The derivative of $|x|$ at $x \neq 0$
- (a) is 1 (b) is -1 (c) is 0 (d) is ± 1
- Q18.** Consider the following statements :
- I: $\lim_{x \rightarrow 0} \sin \frac{1}{x}$ doesn't exist.
- II: $\lim_{x \rightarrow 0} x \sin \frac{1}{x}$ exists.
- Which of the above statements is/are correct?
- (a) I only (b) II only (c) Both I and II (d) Neither I nor II
- Q52.** If $f(x) = 2|x| + 3|\sin x| + 6$, then the right hand derivative of $f(x)$ at $x = 0$ is
- (a) 6 (b) 5 (c) 3 (d) 2
- Q54.** The function $f(x) = x|x|$ is
- (a) continuous and differentiable at $x = 0$
 (b) continuous but not differentiable at $x = 0$
 (c) differentiable but not continuous at $x = 0$
 (d) neither differentiable nor continuous at $x = 0$
- Q55.** If $\tan \left(\frac{x+y}{x-y} \right) = k$, then $\frac{dy}{dx}$ is equal to
- (a) $-\frac{y}{x}$ (b) $\frac{y}{x}$ (c) $\sec^2 \left(\frac{y}{x} \right)$ (d) $-\sec^2 \left(\frac{y}{x} \right)$
- Q58.** Let $f(x) = x - [x]$, where $[\cdot]$ is a g.i.f. Then find $f' \left(\frac{1}{2} \right) =$
- (a) not defined (b) 0 (c) 1 (d) -1
- Q78.** If $y = \sqrt{\cos x + y}$ gives $\frac{dy}{dx} = \frac{\sin x}{k-2y}$, then $k =$
- (a) 1 (b) -1 (c) 2 (d) -2
- Q79.** If $y = A \sin 2x + B \cos 2x$ and $\frac{d^2y}{dx^2} - ky = 0$, then the value of k is

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

Chapter 05 - Applications Of Derivatives

 Select the correct option (s) in the followings.

- Q01.** If $f(x) = \log x$, then $f(x)$ is
 (a) always increasing
 (b) always decreasing
 (c) both increasing and decreasing
 (d) neither increasing nor decreasing
- Q43.** The maximum value of xy , if $x + 2y = 8$, is
 (a) 8 (b) 16 (c) 20 (d) 24
- Q45.** The rate of change of the surface area of the sphere of radius r when the radius is increasing at the rate of 2 cm/s is proportional to
 (a) $\frac{1}{r^2}$ (b) $\frac{1}{r}$ (c) r (d) r^2
- Q47.** The rate of change of the volume of sphere with respect to its surface area, when its radius is 2 units, is
 (a) 1 (b) 2 (c) 3 (d) 4
- Q48.** The sides of an equilateral triangle are increasing at the rate of 2 cm/sec. The rate at which the area increases, when side is 10 cm is
 (a) $10 \text{ cm}^2/\text{s}$ (b) $\sqrt{3} \text{ cm}^2/\text{s}$ (c) $10\sqrt{3} \text{ cm}^2/\text{s}$ (d) $10/3 \text{ cm}^2/\text{s}$
- Q49.** If $f(x) = a(x - \cos x)$ is strictly decreasing in \mathbb{R} , then 'a' belongs to
 (a) $\{0\}$ (b) $(0, \infty)$ (c) $(-\infty, 0)$ (d) $(-\infty, \infty)$

Chapter 06 - Indefinite Integrals

 Select the correct option (s) in the followings.

- Q01.** If $\int e^{-2 \log x} dx = f(x) + k$, then $f(x)$ is
 (a) $\frac{x^3}{3}$ (b) $-\frac{1}{x}$ (c) $-\frac{2}{x}$ (d) $\frac{1}{x}$
- Q41.** If $\frac{d}{dx}[f(x)] = ax + b$ and $f(0) = 0$, then $f(x)$ is equal to
 (a) $a + b$ (b) $\frac{ax^2}{2} + bx$ (c) $\frac{ax^2}{2} + bx + c$ (d) b
- Q43.** Anti-derivative of $\frac{\tan x - 1}{\tan x + 1}$ with respect to x is
 (a) $\sec^2\left(\frac{\pi}{4} - x\right) + c$ (b) $-\sec^2\left(\frac{\pi}{4} - x\right) + c$
 (c) $\log\left|\sec\left(\frac{\pi}{4} - x\right)\right| + c$ (d) $-\log\left|\sec\left(\frac{\pi}{4} - x\right)\right| + c$

- Q44. $\int \frac{2 \cos 2x - 1}{1 + 2 \sin x} dx$ is equal to
 (a) $x - 2 \cos x + C$ (b) $x + 2 \cos x + C$ (c) $-x - 2 \cos x + C$ (d) $-x + 2 \cos x + C$
- Q45. $\int \frac{\sec x}{\sec x - \tan x} dx$ equals
 (a) $\sec x - \tan x + c$ (b) $\sec x + \tan x + c$ (c) $\tan x - \sec x + c$ (d) $-(\sec x + \tan x) + c$

Chapter 07 - Definite Integrals

 Select the correct option (s) in the followings.

- Q01. If $x = \int_0^y \frac{dt}{\sqrt{1+9t^2}}$ and $\frac{d^2y}{dx^2} = ay$, then the value of a is
 (a) 9 (b) 5 (c) -9 (d) -5
- Q37. Value of $\int_0^2 \frac{dx}{x^2+4}$ is
 (a) $\frac{\pi}{2}$ (b) $\frac{\pi}{4}$ (c) $\frac{\pi}{8}$ (d) None of these
- Q39. If $\int_0^{2\pi} \cos^2 x dx = k \int_0^{\pi/2} \cos^2 x dx$, then the value of k is
 (a) 4 (b) 2 (c) 1 (d) 0
- Q40. If $\int_0^a 3x^2 dx = 8$, then the value of 'a' is
 (a) 2 (b) 4 (c) 8 (d) 10
- Q41. $\int_{-1}^1 \frac{|x-2|}{x-2} dx$, $x \neq 2$ is equal to
 (a) 1 (b) -1 (c) 2 (d) -2

Chapter 08 - Application Of Integrals

 Select the correct option (s) in the followings.

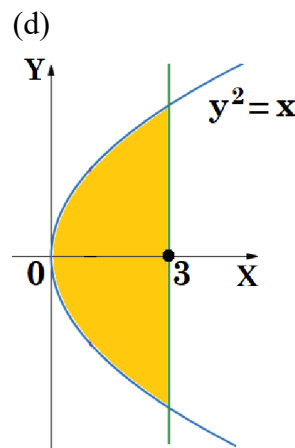
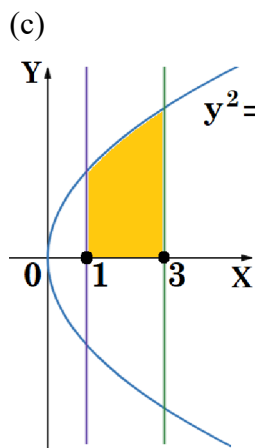
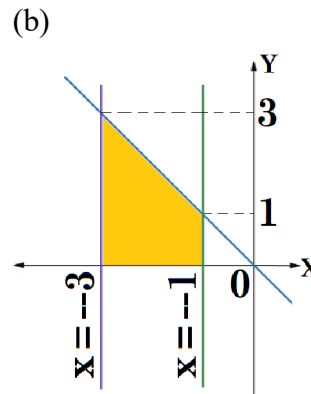
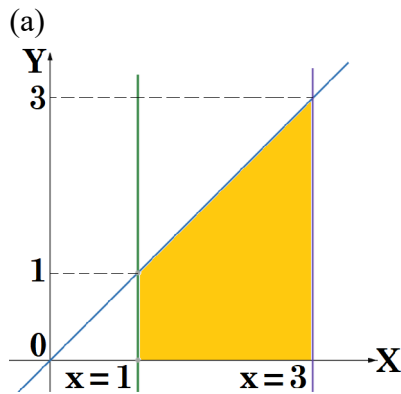
- Q01. The area of the ellipse whose major axis is on the x-axis, is
 (a) $\pi a b$ (b) $\pi(a+b)$ (c) $\frac{\pi}{4}(a^2+b^2)$ (d) $\frac{\pi}{4}(ab)$
- Q02. Area of the triangle (in square units) bounded by the sides $x = 0$, $y = 0$ and $x + y = 2$ is
 (a) 1 (b) 2 (c) 4 (d) 8
- Q26. The area cut off from the parabola $y^2 = px$ by the line $y = px$ is

- (a) $\frac{p}{6}$ (b) $\frac{1}{6p}$ (c) $\frac{p^2}{2}$ (d) $\frac{p^3}{3}$

Q27. The area of the region bounded by the curves $y = x^2$ and $y = |x|$ is

- (a) $\frac{1}{6}$ (b) $\frac{1}{3}$ (c) $\frac{5}{6}$ (d) $\frac{5}{3}$

Q33. Which of the following graph gives the area represented by $\int_1^3 x \, dx$?



Chapter 09 - Differential Equations

Select the correct option (s) in the followings.

Q01. The general solution of the differential equation $\ln\left(\frac{dy}{dx}\right) + x = 0$ is

- (a) $y = e^{-x} + c$ (b) $y = -e^{-x} + c$ (c) $y = e^x + c$ (d) $y = -e^x + c$

Q31. The solution of the differential equation $\cos x \cos y \, dx + \sin x \sin y \, dy = 0$ is

- (a) $\tan x = c$ (b) $\sec x - \sec y = c$ (c) $\sec y \cdot \sin x = c$ (d) $\operatorname{cosec} y \cdot \cos x = c$

Q32. The slope a curve at any point, is the reciprocal of twice the ordinate and it passes through (4, 3). The equation of the curve is

- (a) $y^2 - x + 5 = 0$ (b) $x^2 - y + 5 = 0$ (c) $y^2 - x - 5 = 0$ (d) $x^2 - y - 5 = 0$

Q34. The integrating factor of the differential equation $(1 - y^2) \frac{dx}{dy} + yx = ay$, $(-1 < y < 1)$ is

- (a) $\frac{1}{y^2 - 1}$ (b) $\frac{1}{\sqrt{y^2 - 1}}$ (c) $\frac{1}{1 - y^2}$ (d) $\frac{1}{\sqrt{1 - y^2}}$

Q35. The number of solutions of the differential equation $\frac{dy}{dx} = \frac{y+1}{x-1}$, when $y(1) = 2$, is

- (a) zero (b) one (c) two (d) infinite

Chapter 10 - Linear Programming

 Select the correct option (s) in the followings.

Q01. The corner points of the feasible region determined by the system of linear constraints are $(0, 10)$, $(5, 5)$, $(15, 15)$, $(0, 20)$. Let $Z = px + qy$, where $p, q > 0$. Condition on p and q so that the maximum of Z occurs at the points $(15, 15)$ and $(0, 20)$ both, is

- (a) $p = q$ (b) $p = 2q$ (c) $q = 2p$ (d) $q = 3p$

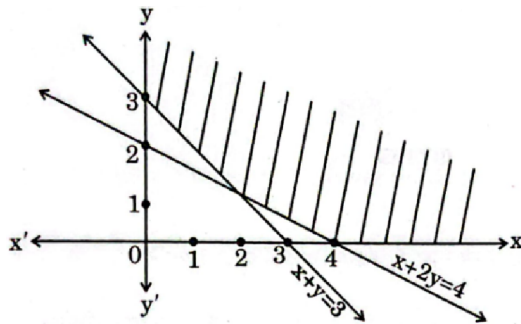
Q45. The number of feasible solutions of the linear programming problem given as

Maximize $z = 15x + 30y$

Subject to constraints $3x + y \leq 12$, $x + 2y \leq 10$, $x \geq 0$, $y \geq 0$ is

- (a) 1 (b) 2 (c) 3 (d) infinite

Q46. The feasible region of a linear programming problem is shown in the figure below



Which of the following are the possible constraints?

- (a) $x + 2y \geq 4$, $x + y \leq 3$, $x \geq 0$, $y \geq 0$
 (b) $x + 2y \leq 4$, $x + y \leq 3$, $x \geq 0$, $y \geq 0$
 (c) $x + 2y \geq 4$, $x + y \geq 3$, $x \geq 0$, $y \geq 0$
 (d) $x + 2y \geq 4$, $x + y \geq 3$, $x \leq 0$, $y \leq 0$

Q48. Which of the following points satisfies both the inequalities $2x + y \leq 10$ and $x + 2y \geq 8$?

- (a) $(-2, 4)$ (b) $(3, 2)$ (c) $(-5, 6)$ (d) $(4, 2)$

Chapter 11 - Vector Algebra

 Select the correct option (s) in the followings.

Q01. The magnitude of the vector $6\hat{i} + 2\hat{j} + 3\hat{k}$ is

- (a) 5 (b) 7 (c) 12 (d) 1

- Q64.** \vec{a} and \vec{b} are two non-zero vectors such that the projection of \vec{a} on \vec{b} is 0. The angle between \vec{a} and \vec{b} is
 (a) $\frac{\pi}{2}$ (b) π (c) $\frac{\pi}{4}$ (d) 0
- Q65.** In ΔABC , $\overline{AB} = \hat{i} + \hat{j} + 2\hat{k}$ and $\overline{AC} = 3\hat{i} - \hat{j} + 4\hat{k}$. If D is mid-point of BC, then vector $\overline{AD} =$
 (a) $4\hat{i} + 6\hat{k}$ (b) $2\hat{i} - 2\hat{j} + 2\hat{k}$ (c) $\hat{i} - \hat{j} + \hat{k}$ (d) $2\hat{i} + 3\hat{k}$
- Q66.** All the vectors of magnitude $3\sqrt{3}$ which are collinear to vector $\hat{i} + \hat{j} + \hat{k}$, are given by
 (a) $\frac{\hat{i} + \hat{j} + \hat{k}}{\sqrt{3}}$ (b) $-\left(\frac{\hat{i} + \hat{j} + \hat{k}}{\sqrt{3}}\right)$ (c) $\pm\left(\frac{\hat{i} + \hat{j} + \hat{k}}{\sqrt{3}}\right)$ (d) $\pm\left(\frac{\hat{i} + \hat{j} + \hat{k}}{3}\right)$
- Q67.** Let $\vec{a} = \hat{i} + 2\hat{j} - 3\hat{k}$ and $\vec{b} = 3\hat{i} - \hat{j} + 2\hat{k}$ be two vectors. Then angle between $\vec{a} + \vec{b}$ and $\vec{a} - \vec{b}$ is
 (a) 90° (b) 180° (c) 45° (d) 0°

Chapter 12 - Three Dimensional Geometry

 Select the correct option (s) in the followings.

- Q01.** Distance of the point (α, β, γ) from y-axis is
 (a) β (b) $|\beta|$ (c) $|\beta| + |\gamma|$ (d) $\sqrt{\alpha^2 + \gamma^2}$
- Q30.** The value of λ for which the angle between the lines
 $\vec{r} = \hat{i} + \hat{j} + \hat{k} + p(2\hat{i} + \hat{j} + 2\hat{k})$ and $\vec{r} = (1+q)\hat{i} + (1+q\lambda)\hat{j} + (1+q)\hat{k}$ is $\frac{\pi}{2}$, is
 (a) -4 (b) 4 (c) 2 (d) -2
- Q32.** If the direction cosines of a line are $\left(\frac{1}{a}, \frac{1}{a}, \frac{1}{a}\right)$, then
 (a) $0 < a < 1$ (b) $a > 2$ (c) $a > 0$ (d) $a = \pm\sqrt{3}$
- Q33.** The point $(x, y, 0)$ on the xy-plane divides the line segment joining the points $(1, 2, 3)$ and $(3, 2, 1)$ in the ratio
 (a) 1 : 2 internally (b) 2 : 1 internally (c) 3 : 1 internally (d) 3 : 1 externally
- Q34.** The angle between the lines $2x = 3y = -z$ and $6x = -y = -4z$ is
 (a) 0° (b) 30° (c) 45° (d) 90°

Chapter 13 - Probability

 Select the correct option (s) in the followings.

- Q01.** If A and B are independent events and $P(A \cup B) = \frac{3}{8}$, then $P(A') \cdot P(B')$ is
 (a) $\frac{5}{8}$ (b) $\frac{3}{8}$ (c) $\frac{1}{8}$ (d) $\frac{7}{8}$

- Q35.** One mapping (i.e., function) is selected at random from all the mappings of the set $A = \{1, 2, 3, 4, 5, 6\}$ into itself. Then, the probability that the mapping selected is a one-one mapping, is
- (a) $\frac{5}{324}$ (b) $\frac{4}{325}$ (c) $\frac{2}{354}$ (d) $\frac{3}{524}$
- Q45.** If A and B are two events such that $P(A|B) = 2 \times P(B|A)$ and $P(A) + P(B) = \frac{2}{3}$, then $P(B)$ is equal to
- (a) $\frac{2}{9}$ (b) $\frac{7}{9}$ (c) $\frac{4}{9}$ (d) $\frac{5}{9}$
- Q53.** Five fair coins are tossed simultaneously. The probability of the events that at least one head comes up is
- (a) $\frac{27}{32}$ (b) $\frac{5}{32}$ (c) $\frac{31}{32}$ (d) $\frac{1}{32}$
- Q63.** A matrix B of order 2 is randomly selected from all the matrices of order 2×2 with entries 0 or 1. What is the probability of matrix B to be a diagonal matrix?
- (a) $\frac{1}{8}$ (b) $\frac{3}{4}$ (c) $\frac{1}{2}$ (d) $\frac{1}{4}$

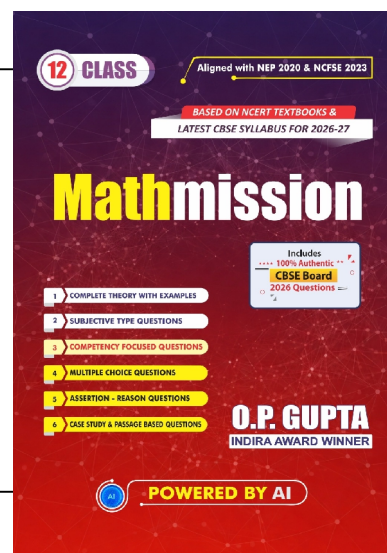
#WE-ARE-ON-MISSION

MATHMISSION FOR XII (2026-27)

For CBSE Board Exams ▪ Maths (041)

By O.P. Gupta (Indira Award Winner)

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- ✦ ANSWERS of all Questions



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With Regards

O.P. Gupta

Author - Mathmission Series of Books

Founder & Mentor

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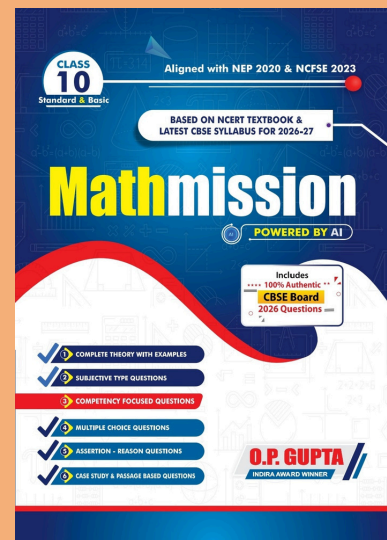
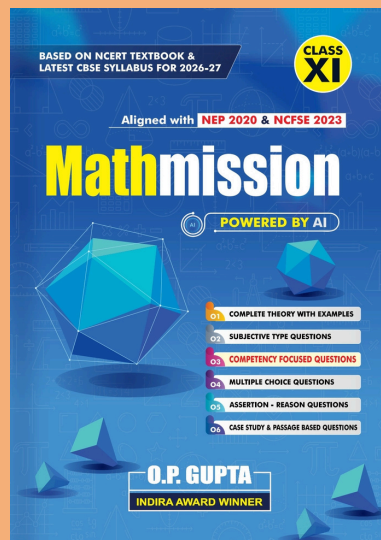
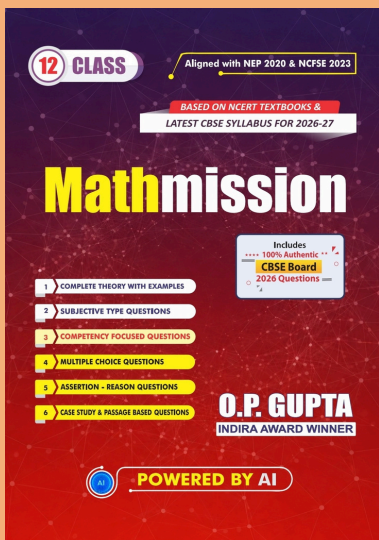
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