FINAL ANSWER KEY

Question Paper Code: 14/2025/OL Exam:KEAM 2025 ENGG-5 Date of Test: 28-04-2025

- Let $A = \{ x : x \text{ is a positive multiple of 2 less than 36} \}$,
- **1.** $B = \{x: x \text{ is a positive multiple of 3 greater than 16}, and <math>c = \{x: x \text{ is a positive multiple of 4 less than 42}\}$. Then $(A \cap B) \cap C =$
 - **A**) {12, 24, 36}
 - **B**) {12, 24}
 - **C**) {24}
 - **D**) {24, 36}
 - ε) φ

Correct Answer : Option C

2. If n(A) = 8, then the number of subsets of A which contain 2 or 6 elements is

- **A**) 24
- **B**) 28
- **c**) 48
- **D**) 56
- **E**) 216

Correct Answer : Option D

- **3.** If f(x) = [2x], where [x] denotes the greatest integer function in x, then the image of {-2.3, 2.9} is
 - **A**) {-5, 3}
 - **B**) {-5, 5}
 - **C**) {-4, 5}
 - **D**) {-3, 2}
 - **E**) {-4, 6}

Correct Answer : Option B

4. If $f(x) = ax + bx^2$ then the co-efficient of x^3 in f(f(x)) is

- **A**) 0
- в) ab
- c) a^3
- D) ab^2
- E) $2ab^2$

Correct Answer : Option E

5. If $z = 1 + i \tan \theta$, where $\pi < \theta < \frac{3\pi}{2}$, then |z| is equal to

- A) 1+tan θ
- **B**) 2tan θ
- **c**) sec θ
- **D**) -sec θ
- E) cosec θ

Correct Answer : Option D

6. If
$$z = \frac{3+i}{2-i}$$
 then z^{-1} is equal to
A) $1+i$
B) $\frac{1+i}{2}$
C) $\frac{1-i}{2}$
D) $2(1-i)$
E) $1-i$

Correct Answer : Option C

- **7.** If z is a complex number, then the minimum value of |z 2| + |z 4| is
- A) $\sqrt{20}$
- в) 4
- **C**) 6
- D) √6
- е) 2

Correct Answer : Option E

8. The point $z = \frac{1}{\sqrt{2}}(1+i)$ in the complex plane is rotated about the origin through an angle $\frac{\pi}{4}$ in the clockwise direction, then the new position of z is

A) 2 B) 1 c) $\frac{1}{\sqrt{2}}(1-i)$ D) $\frac{1}{2}(1-i)$

е) 1—*i*

Correct Answer : Option B

9. If the numbers x, 6, y, 54, 162 are in geometric progression, then $\frac{y}{x}$ is equal to

- **A**) 3
- **B**) 6
- **c**) 9
- **D**) 12
- **E**) 18

Correct Answer : Option C

10. If 1, *a*, *b*, *c*, 16 are in geometric progression, then $\sqrt[3]{abc}$ is equal to

- **A**) 1
- **B**) 2
- **c**) 6
- D) 4
- **E**) 8

Correct Answer : Option D

- **11.** The sum of the geometric series $\sqrt{3} + \sqrt{12} + \sqrt{48} + \dots$ up to 10 terms is
 - **A**) 1023 √3
 - **B**) 1024√3
 - **c**) $511\sqrt{3}$
 - **D**) $512\sqrt{3}$
 - E) 215√3

Correct Answer : Option A

- **12.** The sum and difference of the arithmetic mean and the geometric mean of two positive integers are respectively, 18 and 8. Then the values of the two numbers are
- A) 12 and 24
- **B**) 2 and 24
- **c**) 6 and 20
- **D**) 8 and 18
- E) 1 and 25

Correct Answer : Option E

13. The coefficient of x^5 in the binomial expansion of $\left(\sqrt{x} + \frac{1}{x}\right)^{10}$ is

- **A**) 55
- **B)** 10
- **C**) 45
- **D**) 135
- **E)** 1

Correct Answer : Option E

- **14.** Four digit numbers are formed using 0, 3, 4, 5, 9, 8 without repetitions. Then the number of such 4 digits numbers is
- **A**) 270
- **B**) 300
- **c**) 320
- **D**) 400
- **E**) 450

Correct Answer : Option B

- **15.** A bag contains 5 red balls, 4 black balls, and 3 white balls. Then the number of ways of selecting three balls at random that contains at least one white ball is
 - **A**) 220
 - **B**) 210
 - **c**) 180
 - **D**) 136
 - E) 74

Correct Answer : Option D

16. Four fair dices are rolled. Then the number of ways in which the sum of upper faces of four dices can be six, is

- **A**) 4
- **B)** 10
- **C**) 15
- **D**) 24
- **E**) 36

Correct Answer : Option B

- **17.** $2 + {}^{15}C_1 + {}^{15}C_2 + \dots {}^{15}C_{14} =$ **A**) 2^{14} **B**) 2^{15}
 - **c**) 2¹⁶
 - **D**) 2¹⁰
 - E) 2¹⁸

Correct Answer : Option B

18. If $\begin{vmatrix} a & 1 & 1 \\ 1 & b & 1 \\ 1 & 1 & c \end{vmatrix} = 2$, where *a*, *b* and *c* are positive integers, then a+b+c is equal to **A)** 6 **B)** 8 **C)** 12

- **D**) 18
- E) 28

Correct Answer : Option A

19. Let $\Delta = \begin{vmatrix} x & y & 1 \\ x+y & y+1 & x+1 \\ 1 & x & y \end{vmatrix}$. If x+y = -1, then the value of Δ is equal to **A**) **3 B**) **2 C**) **1 D**) **0 E**) -3

Correct Answer : Option D

20. If
$$A = \begin{bmatrix} 1 & 1 & 1 \\ 0 & 2 & 1 \\ 0 & 0 & -2 \end{bmatrix}$$
 then $|adj(adjA)|$ is equal to
A) 16
B) 256
C) 128
D) -256
E) -16

Correct Answer : Option B

If the following system of linear equations

21.
$$x - 2y + z = 5$$

 $2x - y + 2z = 7$
 $x + 2y + \lambda z = 5$ has a unique solution, then $\lambda \neq$
A) 1
B) -1
C) 2
D) -2

E) 0

Correct Answer : Option A

22. If $\frac{x+1}{x-1} < 2$, then x lies in the interval **A**) $(-\infty, -3) \cup (1, \infty)$ **B**) $(-\infty, -1) \cup (3, \infty)$ **c**) $(-\infty, 1) \cup (3, \infty)$ **D**) (-3, -1) **E**) (1,3)

Correct Answer : Option C

- **23.** The solution set of inequality |x + 2| < 3 is
 - A) -1 < x < 5B) -5 < x < 1
 - c) -1 < x < 3
 - D) 1 < x < 3
 - **E**) -1 < x < 1

Correct Answer : Option B

24. If $tan(x - y) = \frac{4}{5}$, $tan(x + y) = \frac{6}{5}$ and $0 < x, y < \frac{\pi}{4}$, then tan2x is **A**) 62 **B**) 60

- **C**) 54
- **D**) 50
- E) 55

Correct Answer : Option D

25. The value of $tan \frac{\pi}{12} + tan \frac{\pi}{6} + (tan \pi/12 tan \pi/6)$ is equal to **A**) 1 **B**) 2 **C**) $\sqrt{3}$ **D**) $-\sqrt{3}$ **E**) -1

Correct Answer : Option A

26. The period of the function f(x) = 2sin4x + 3cos2x is

- A) $\frac{\pi}{2}$
- 4
- **B**) π
- C) $\frac{3\pi}{2}$
- **D**) 2π
- **E**) 3π

Correct Answer : Option B

27.
$$\frac{1-\cos 2x}{1+\cos 2x} - \sec^2 x =$$

A) 1

- B) tan2x
- **c**) sec2x
- **D**) 0
- **E)** -1

Correct Answer : Option E

28. If $\theta \in \left[\frac{\pi}{2}, \frac{3\pi}{2}\right]$, then $sin^{-1}(sin\theta)$ is equal to **A**) θ **B**) $\theta - \pi$ **c**) $\theta - \frac{\pi}{2}$ **D**) $\pi - \theta$ **E**) $\theta + \frac{\pi}{2}$

Correct Answer : Option D

29. If $cos^{-1}x + cos^{-1}y + cos^{-1}z = 3\pi$, then(x + y + z) is equal to A) 1 B) 3 C) 4 D) -3 E) $\frac{1}{8}$

Correct Answer : Option D

30. If $sin^{-1}x + sin^{-1}y = \frac{2\pi}{3}$, then $cos^{-1}x + cos^{-1}y$ is equal to A) $-\frac{\pi}{2}$ B) $\frac{\pi}{2}$ C) π D) $\frac{2\pi}{3}$ E) $\frac{\pi}{3}$

Correct Answer : Option E

If the line joining of two points (1, 0) and (4, 3) is rotated about the point (1, 0) in counter **31.** clockwise direction through an angle 15°, then the equation of the line in the new position is

$$A) \quad \sqrt{3x - 2y} - \sqrt{3} = 0$$

$$\textbf{B}) \quad \sqrt{3}x - y - \sqrt{3} = 0$$

- c) x + y 1 = 0
- D) $x + \sqrt{3}y 1 = 0$
- E) 3x y 3 = 0

Correct Answer : Option B

32. The point with integral coordinates on the line x + y = 1, that lie at a distance 2 units from the line 5x + 12y = 0, is

- **A**) (-7,8)
- в) (-1,2)
- **c**) (-12,13)
- **D**) (-2,3)
- E) (-3,4)

Correct Answer : Option D

33. If the normal form of the equation of a straight line $x + \sqrt{3}y = 2\sqrt{3}$ is $x\cos \alpha + y\sin \alpha = p$ then the values of α and p are respectively

A)
$$\frac{\pi}{6}$$
 and $\sqrt{6}$

- **B**) $\frac{\pi}{3}$ and $\sqrt{6}$
- **c**) $\frac{\pi}{3}$ and $\sqrt{3}$
- **D**) $\frac{\pi}{6}$ and $\sqrt{3}$

E)
$$\frac{\pi}{4}$$
 and $\sqrt{6}$

Correct Answer : Option C

If the two circles $(x-2)^2 + (y-3)^2 = 9$ and $(x-2)^2 + (y+3)^2 = a^2$ intersect in two distinct points, then

- A) 1 < a < 6
- **в**) 1 < a < 7
- c) 3 < a < 7
- **D**) 3 < a < 4
- E) 3 < a < 9</p>

Correct Answer : Option E

- **35.** If one end of the latus rectum of the parabola $y^2 = 16x$ is (4,8), then the coordinates of the other end of the latus rectum, are
- **A**) (4,-16)
- **B**) (4,10)
- **c**) (4,-10)

- **D**) (4,16)
- **E**) (4,-8)

Correct Answer : Option E

- **36.** If the length of the latus rectum of an ellipse is one-fourth of the major axis, then the eccentricity of the ellipse is
 - $\begin{array}{c} \mathbf{A} \\ \mathbf{b} \\ \mathbf{B} \\ \mathbf{b} \\ \mathbf{C} \\ \mathbf{c} \\ \mathbf{c} \\ \mathbf{b} \\ \mathbf{c} \\ \mathbf$
 - **E**) $\frac{2}{3}$

Correct Answer : Option A

- **37.** The distance between the foci of the hyperbola $x^2 4y^2 = 16$, is
 - A) $2\sqrt{5}$
 - **B**) 4√5
 - c) $4\sqrt{3}$
 - **D**) 5√3
 - **E**) $5\sqrt{2}$

Correct Answer : Option B

38. The unit vector that bisects the angle between two vectors 2i + j + 2k and i + 2j - 2k is

- $A) \quad \frac{i+j-k}{\sqrt{3}}$
- **B**) $\frac{i-j}{\sqrt{2}}$
- C) $\frac{i+j+k}{\sqrt{3}}$ i-i+k
- $D) \quad \frac{i-j+k}{\sqrt{3}}$ i+j

E)
$$\frac{1}{\sqrt{2}}$$

Correct Answer : Option E

39. Let \vec{a} and \vec{b} be two unit vectors, and θ be the angle between them. If $\vec{a} \cdot \vec{b}$ is a unit vector, then θ is equal to

A)
$$\frac{\pi}{3}$$

B) $\frac{\pi}{2}$
C) $\frac{\pi}{4}$
D) $\frac{2\pi}{3}$
E) $\frac{\pi}{6}$

Correct Answer : Option A

40. If $\vec{a} = i + 2j - 2k$ and $\vec{b} = 2i + j + 2k$ then a unit vector perpendicular to $\vec{a} + \vec{b}$ and $\vec{a} - \vec{b}$ is **A**) $\frac{2i-2j+k}{3}$ **B**) $\frac{2i-2j-k}{3}$ **C**) $\frac{i+j+k}{\sqrt{3}}$ **D**) $\frac{i+2j+2k}{3}$ **E**) $\frac{i+j-k}{\sqrt{3}}$

Correct Answer : Option B

Let \vec{a}, \vec{b} and \vec{c} be the sides of a triangle ABC such that $\vec{BC} = \vec{a}, \vec{CA} = \vec{b}$ and $\vec{AB} = \vec{c}$. If BC=AC=3 and

- $\vec{b} \cdot \vec{c} = -9$ then $\vec{a} \cdot \vec{b}$ is equal to
- **A**) 27
- **B**) 9
- **c**) 3√3
- **D**) 0
- **E**) $-3\sqrt{3}$

Correct Answer : Option D

The equation of the straight line joining the points (1, 2,3) and (3, 4, k) is $\frac{x-3}{1} = \frac{y-4}{1} =$ **42.** $\frac{z-k}{5}$. Then the value of *k* is

- **A**) 4
- **B**) 5
- **C**) 7
- **D**) 10

E) 13

Correct Answer : Option E

43. The projection of a line segment on the co-ordinate axes are 5, 6,8 . Then the length of the line segment is

- **A**) 5
- **B**) 5√5
- **C**) 6
- D) 6√6
- E) 6√5

Correct Answer : Option B

44. The shortest distance between the point (2, 3, 4) and the line $\frac{x-4}{-2} = \frac{y-4}{2} = \frac{z-6}{1}$ is

- **A**) 12
- **B**) 9
- **c**) 3
- D) √5
- E) $\sqrt{3}$

Correct Answer : Option C

45. If a point *P* with *x* -coordinate 7 lies on the line joining the points *A* (1, 2, 3) and *B* (4, 6, 8) then the coordinates of the point *P* are

- **A**) (7,10, -13)
- **B**) (7,-10, 13)
- **c**) (7,10, 12)
- **D**) (7,10, 13)
- E) (7,10, 15)

Correct Answer : Option D

46. If the point (3,6, k) lie on the line $\frac{x-1}{1} = \frac{y-2}{2} = \frac{z-3}{3}$, then the value of k is

- **A**) 2
- **B**) 3
- **c**) 9
- **D**) -2
- **E**) -3

Correct Answer : Option C

- 47. The mean deviation from mean of the five numbers 2, 4, 6, 8, 10 is
 - **A**) 2.4

- **B**) 3.6
- **C**) 4.8
- **D**) 6
- **E**) 0

Correct Answer : Option A

48. If the standard deviation of six numbers $x_1, x_2, x_3, x_4, x_5, x_6$ is 4,then the variance of $2x_1 + 3, 2x_2 + 3, 2x_3 + 3, 2x_4 + 3, 2x_5 + 3, 2x_6 + 3$ is

- **A**) 64
- **B**) 67
- **C**) 16
- **D**) 19
- E) 8

Correct Answer : Option A

49. A die is rolled once. If the die shows odd number, then the probability of getting other than 5 is

A) $\frac{1}{6}$ B) $\frac{5}{6}$ C) $\frac{1}{3}$ D) $\frac{2}{3}$ E) $\frac{1}{5}$

Correct Answer : Option D

- **50.** If P(A) = 0.4, and P(B|A) = 0.9, then $P(\overline{A \cap B})$ is equal to
 - A) 0.36
 - **B**) 0.6
 - **C**) 0.64
 - **D**) 0.44
 - **E**) 0.24

Correct Answer : Option C

51. If f(x) + 3f(1 - x) = x + 4, then f(x) = x + 4

A) $\frac{19-4x}{8}$ B) $\frac{11-4x}{8}$ C) $\frac{11-2x}{8}$

D)
$$\frac{11-2x}{9}$$

E) $\frac{11-4}{9}$

Correct Answer : Option B

52. If $f(x) = \sqrt{10 - x}$, then $\lim_{x \to 1} \frac{f(x) - f(1)}{x - 1}$ is equal to A) 3 B) $\frac{1}{3}$ C) $\frac{1}{6}$ D) $-\frac{1}{6}$ E) $\frac{3}{2}$

Correct Answer : Option D

53. The value of $\lim_{x \to 0} \frac{(x - \sin 2x)(2x - \sin x)}{x^2}$ is equal to A) 0 B) -2 C) 2 D) -1 E) $-\frac{3}{2}$

Correct Answer : Option D

54. The function $f(x) = \begin{cases} \frac{3x^2 - 12}{x - 2}, & x \neq 2\\ \lambda, & x = 2 \end{cases}$ is continuous for $x \in \mathbb{R}$, then the value of λ is A) 0 B) 4 C) 6 D) 8 E) 12

Correct Answer : Option E

55. The set of all points where the function $f(x) = \frac{x}{x^2 - 4}$, $x \in \mathbb{R}$, is discontinuous, is

- **A**) {0,2}
- **B**) {0,4}
- **c**) {0,-2,2}
- **D**) {2,4}

E) {-2,2}

Correct Answer : Option E

56. If $(xe)^{y} - e^{x} = 0$, then $\frac{dy}{dx}$ at x = 1 is A) 0 2 B) **C**) $\frac{1}{2}$ $\frac{1}{4}$ D) 4 E)

Correct Answer : Option A

57. If y = sinx sin2x, and t = cosx, then $\frac{dy}{dt}$ is

- A) $2(3t^2 1)$ B) $1 3t^2$
- c) $\frac{1}{2}(1-3t^2)$
- D) $(3t^2 1)$
- E) $2(1-3t^2)$

Correct Answer : Option E

58. If $y = sin^{-1}(2x\sqrt{1-x^2})$, then $\frac{dy}{dx}$ at x=0 is A) 0 1 B) C) 2 $\frac{\sqrt{3}}{2}$ D) E) -1

Correct Answer : Option C

59. If
$$(f(x))^n = f(nx)$$
, then $\frac{f'(nx)}{f'(x)}$ is
A) $(f(x))^n$
B) $nf(nx)$
C) $\frac{f(nx)}{f(x)}$
D) $\frac{f((n-1)x)}{f(x)}$

E)
$$\frac{f(x)}{f(nx)}$$

Correct Answer : Option C

60. If $x^3 = sin\theta$, $y^3 = cos\theta$, then $x\frac{dy}{dx}$ is **A**) $\frac{y^5 - 1}{y^5}$ **B**) $\frac{y^6 - 1}{y^5}$ **C**) $\frac{y^6 - 1}{y^6}$ **D**) $\frac{y^3 - 1}{y^3}$ **E**) $\frac{y^2 - 1}{y^2}$

Correct Answer : Option B

61. If $y = (5x - 2)e^x$, then $\frac{d^2y}{dx^2}$ is equal to A) $e^x(5x + 8)$ B) $e^x(5x - 3)$ C) $e^x(5x + 5)$

- D) $e^{x}(5x+3)$
- E) $e^{x}(5x-5)$

Correct Answer : Option A

62. If the function $f(x) = ax^3 - 9x^2 + 6ax + 6$ attains maximum at x = 1 and minimum at x = 2, then the value of a is

- **A**) 6
- **B**) 5
- **C**) 4
- **D**) 3
- **E**) 2

Correct Answer : Option E

63. The function $f(x) = sin \theta + cos \theta$, $0 \le x \le 2\pi$ is decreasing in the interval

- **A**) $0 \le x < \pi$ **B**) $0 \le x \le \frac{\pi}{4}$
- c) $\frac{\pi}{4} \le x \le \frac{5\pi}{4}$

D) $\frac{5\pi}{4} \le x \le 2\pi$ **E**) $\frac{\pi}{2} \le x \le \frac{3\pi}{2}$

Correct Answer : Option C

64. If x + y = 50, then the maximum value of $\sqrt{4xy}$ is

- **A**) 25
- **B**) 50
- **C**) 100
- **D**) 625
- **E**) 2500

Correct Answer : Option B

65. $\int \cot x (1 - \csc x) e^x dx$ is

- A) $e^x \cot x + C$
- B) $-e^x cot x + C$
- c) $e^x \operatorname{cosec} x + C$
- D) $-e^x cose c x + C$
- **E**) $e^x \operatorname{cosec} x \cot x + C$

Correct Answer:-Question Cancelled

$$66. \quad \int \frac{dx}{\cos^2/3x \sin^4/3x} \text{ is}$$

A)
$$3tan^3x + C$$

- **B**) $3tan^{1/3}x + C$
- c) $-3tan^{1/3}x + C$
- D) $-3tan^{-1/3}x + C$
- E) $3tan^{-1/3}x + C$

Correct Answer : Option D

67.
$$\int x(1-x)^{10} dx =$$
A)
$$\frac{(1-x)^{12}}{12} - \frac{(1-x)^{11}}{11} + C$$
B)
$$\frac{(1-x)^{12}}{12} + \frac{(1-x)^{11}}{11} + C$$
C)
$$\frac{(1-x)^{12}}{11} - \frac{(1-x)^{10}}{10} + C$$
D)
$$\frac{(1-x)^{12}}{12} + \frac{(1+x)^{11}}{11} + C$$
E)
$$\frac{(1-x)^{12}}{12} - \frac{(1+x)^{11}}{11} + C$$

Correct Answer : Option A

68. $\int \left(\frac{\sin 3x}{\sin x} - \frac{\cos 3x}{\cos x}\right) dx \text{ is equal to}$ A) $2\cos 2x + C$ B) $-2\cos 2x + C$ c) $2\sin 2x + C$ D) 2x + CE) x + C

Correct Answer : Option D

69.	$\int_{0}^{1} \frac{\sin x}{\sin x + \sin(1-x)} dx$ is equal to
A)	6
B)	4
C)	2
D)	$\frac{1}{2}$
E)	$\frac{1}{4}$

Correct Answer : Option D

70.	$\int_{0}^{\pi/2} \sin 2x e^{\sin x} dx \text{ is equal to}$
A)	4
B)	3
C)	2
D)	1
E)	0

Correct Answer : Option C

71. The value of $\int_{1}^{3} [x-1] dx$, where [x] denotes the greatest integer function in x, is equal to **A**) -2 **B**) -1 **C**) 0 **D**) 1 **E**) 2

Correct Answer : Option D

72.	Area of the region bounded by the function $f(x) = \begin{cases} x \\ y \\$	x = -x + 6	$x \le 3$ x > 3 with the x-axis (in square
	units) in the first quadrant is		
• •	40		

- **A**) 18
- **B**) 9
- **c**) 6
- **D**) 3
- **E)** 4.5

Correct Answer : Option B

- **73.** The general solution of the differential equation $ydx xdy = y^2(xdy + ydx)$ is
- A) $\frac{y}{x} = xy + C$ B) $\frac{x}{y^2} = xy + C$ C) $\frac{y}{x^2} = xy + C$
- D) x + y = xy + C

$$\mathbf{E} \quad \frac{x}{y} = xy + C$$

Correct Answer : Option E

74. The solution of the linear differential equation $\frac{dy}{dx} + y = e^{-x}$, when x = 0, y = 1, is

- A) $ye^{-x} = x 1$
- **B**) $ye^{-x} = e^x 1$

c)
$$ye^x = x + 1$$

- D) $ye^{-x} = e^x + 1$
- **E**) $ye^{x} = x 1$

Correct Answer : Option C

The shaded region ABC shown in the diagram is given by the inequalities

75.
A)
$$x + y \le 3, 3x + 5y \ge 15, x \ge 0, y \ge 0.$$

B) $x + y \ge 3, 3x + 5y \le 15, x \ge 0, y \ge 0.$
c) $x + y \le 3, 3x + 5y \le 15, x \ge 0, y \ge 0.$
c) $x + y \le 3, 3x + 5y \le 15, x \ge 0, y \ge 0.$
d) $x + y \ge 3, 3x + 5y \le 15, x \ge 0, y \ge 0.$
e) $x + y \le 3, 3x + 5y \ge 15, x \ge 0, y \ge 0.$
f) $x + y \le 3, 3x + 5y \ge 15, x \ge 0, y \ge 0.$
f) $x + y \le 3, 3x + 5y \ge 15, x \ge 0, y \ge 0.$

Correct Answer : Option B

- 76. When a metallic sphere is heated, maximum percentage change will be observed in its
 - A) volume
 - B) radius
 - c) diameter
 - D) surface area
 - E) mass

Correct Answer : Option A

- 77. The dimensions of ratio of energy to Planck's constant are those of
 - A) time
 - B) velocity
 - **c**) frequency
 - D) linear momentum
 - E) angular momentum

Correct Answer : Option C

- **78.** A garden roller of weight 100 kg is pulled with a force of 300 N acting at an angle of 30° with the ground. The effective pulling weight of the roller in (kg wt) is (g = 10 ms⁻²)
 - **A**) 850
 - **B**) 725
 - **C**) 800
 - **D**) 820
 - **E**) 700

Correct Answer : Option A

- **79.** When a body starts from rest and moves with uniform acceleration, then its instantaneous displacement s is related to time t as
 - A) $s \propto t^{-1}$
 - B) $s \propto t^{1/2}$
 - c) $s \propto t$
 - D) $s \propto t^2$
 - E) $s \propto t^{-2}$

Correct Answer : Option D

- **80.** A particle moving in a circular path, covers equal distances in equal intervals of time. Then the quantity associated with the particle that remains constant with time is
 - A) displacement
 - B) velocity
 - **c**) speed

- D) acceleration
- E) linear momentum

Correct Answer : Option C

- **81.** A body of mass 2 kg is moving with a velocity of 10 ms^{-1} . If a force of 50 N is applied on it for 10 s along its motion, the velocity of the body (in ms⁻¹) is
 - **A**) 220
 - **B**) 200
 - **c**) 150
 - **D**) 175
 - **E**) 260

Correct Answer : Option E

A body of mass 5 kg collides with a wall with a speed of 50 ms $^{-1}$ and rebounds with the

- **82.** same speed. If the time of contact of the body with the wall is $\frac{1}{20}$ *s* the force exerted on the wall is
 - **A**) $0.5 \times 10^4 N$
 - **B**) $2.5 \times 10^4 N$
 - c) $2 \times 10^3 N$
 - D) $1 \times 10^4 N$
 - E) $4 \times 10^{3} N$

Correct Answer : Option D

- 83. Power of an engine driving a vehicle of mass m with a speed v on a horizontal road is (μ is the coefficient of friction between the road and the tyre)
 - A) $\frac{mg}{\mu v}$
 - в) µ*mgv*
 - c) μmgv^2
 - μmg
 - D) $\frac{1}{v}$
 - $\mathsf{E}) \quad \frac{\mu \ mv}{g}$

Correct Answer : Option B

- 84. In a perfectly inelastic head on collision
 - A) kinetic energy is conserved
 - B) total energy is not conserved
 - c) linear momentum is not conserved

- two bodies move as one body after collision D)
- two bodies move separately in different directions E)

Correct Answer : Option D

	A rotating fly wheel with an initial angular speed of 4 rad s $^{-1}$ has an angular
85.	acceleration of

2 rad s $^{-2}$. The angle (in radian) it will turn in a time of 4*s* from the start is

- 32 A)
- B) 16
- 8 C)
- 64 D)
- 24 E)

Correct Answer : Option A

- 86. Radius of gyration of a uniform circular disc of radius R about its diameter is
 - <u>R</u> 8 A)

 - 2R B)
 - R C)
 - $\frac{R}{4}$ D)

 - $\frac{R}{2}$ E)

Correct Answer : Option E

When two rigid bodies with moments of inertia I_1 and I_2 and angular velocities ω_1 and

- 87. ω_2 respectively are coupled in such a way that their rotation axes coincide, the angular velocity of the combination is ω .Then
 - A) $(I_1 \omega_1 + I_2 \omega_2) = (I_1 + I_2) \omega$
 - **B**) $I_1 \omega_1 I_2 \omega_2 = (I_1 + I_2) \omega_1$
 - **c**) $I_1 I_2 \omega_1 \omega_2 = I_1 I_2 \omega_1$
 - **D**) $(I_1 + I_2)(\omega_1 + \omega_2) = (I_1 + I_2)\omega$
 - E) $\omega_1 + \omega_2 = \omega$

Correct Answer : Option A

- If K is the kinetic energy of a satellite at a height h from the surface of earth, then its total 88. energy is
 - -K A)
 - 2K B)
 - \sqrt{K} C)
 - $-\frac{K}{2}$ D)

E)
$$-\frac{K}{4}$$

Correct Answer : Option A

- The force between two identical solid spheres each of radius r kept in contact is F. If the 89. distance of their centres is made 4r, then the force between them is
 - *F* 2 A)

 - $\frac{F}{4}$ B)
- $\frac{F}{8}$ C)
- *F* 16 D)
- $\frac{F}{24}$
- E)

Correct Answer : Option B

- 90. Global warming leads to
 - falling of sea level A)
 - B) lowering of the average temperature of earth
 - static weather pattern C)
 - melting of ice caps at slower rate D)
 - expansion of desert E)

Correct Answer : Option E

The specific heat capacity at constant volume Cv of a mole of an ideal gas is related to 91. the gas constant R and the ratio of the specific heats Υ as

A)
$$\frac{R}{\Upsilon - 1}$$

B) $\frac{R\Upsilon}{1 - \Upsilon}$
 $R(1 - \Upsilon)$

C)
$$\frac{R(1-\Upsilon)}{\Upsilon}$$

D)
$$\frac{R}{(1-\Upsilon)}$$

$$\mathsf{E} \, \mathsf{i} \, \frac{\mathsf{K}}{(1+\mathsf{Y})}$$

Correct Answer : Option A

- **92.** When a gas is compressed in an insulated vessel
 - its internal energy decreases A)
 - its temperature decreases B)
 - both its pressure and volume increase C)
 - both its temperature and volume increase D)

E) both its temperature and internal energy increase

Correct Answer : Option E

- **93.** The statement, the total pressure of a mixture of ideal gases is the sum of partial pressures, is called as
 - A) Boyle's law
 - B) Charles' law
 - c) Dalton's law
 - D) Perfect gas law
 - E) Law of equipartition

Correct Answer : Option C

- **94.** If the temperature of a gas is changed to 9 times the initial value, then the *rms* velocity of the gaseous molecule increases by
 - A) 9 times
 - B) 3 times
 - **c**) $\sqrt{3}$ times
 - D) 18 times
 - E) 12 times

Correct Answer : Option B

95. For an ideal gas at temperature *T* having the total number of molecules *N*, the product of the pressure and volume, *PV* is equal to (k_B is the Boltzmann constant)

- **A**) 2*NT*
- **в**) *K_BNT*
- **c**) $K_B T \sqrt{N}$
- D) $K_B N \sqrt{T}$
- E) NT

Correct Answer : Option B

- **96.** If the mean kinetic energy of one mole of helium gas at 400 K temperature is 5000 J, then that for one mole of neon gas at 800 K is
 - **A**) 5000 J
 - **B**) 50000 J
 - **c**) 10000 J
 - **D**) 2500 J
 - **E**) 500 J

Correct Answer : Option C

97. If T and ρ represent the temperature and density of a gas ,then the velocity of sound in the gas is directly proportional to

- A) \sqrt{T}
- **в**) $\sqrt{\rho}$
- **c**) *T*
- **D**) ρ²
- E) T^2

Correct Answer : Option A

98. For smaller angular displacement, the period of a simple pendulum depends on

- A) its amplitude
- B) its phase constant
- c) its energy
- D) the mass of the bob
- E) its length

Correct Answer : Option E

- **99.** If the speed of transverse waves on a stretched wire of linear density 7 x 10^3 kg m⁻¹ is
 - 100 ms^{-1} , then the tension in the wire is
 - **A**) 60 N
 - **B**) 600 N
 - **c**) 700 N
 - **D**) 70 N
 - E) 80 N

Correct Answer:-Question Cancelled

- **100.** Force between two charges +8 μ C and +2 μ C is 16 N. If the charges are brought into contact and then separated by the same distance, the force between them is
- **A**) 25 N
- **B**) 20 N
- **C**) 30 N
- **D**) 15 N
- E) 12 N

Correct Answer : Option A

- **101.** If the work done in moving a charge of 3 C from A to B is 12 J, then the potential difference between A and B is
- **A**) 5V
- **B**) 4 V
- **c**) 36 V
- **D**) 26 V
- **E**) 10 V

- The magnitude of the torque experienced by an electric dipole of dipole moment ${\bf P}$ placed 102. at an angle of 30° in a uniform electric field E is
 - PE A) B) $\frac{\sqrt{3}}{2}PE$ <u>РЕ</u> 2 C)
 - $\frac{PE}{\sqrt{2}}$ D) $\frac{PE}{\sqrt{3}}$
 - E)

Correct Answer : Option C

103. The *rms* value of *a* . *c* with peak value of 200 V is

- A) 100V
- $\frac{200}{\sqrt{2}}V$ B)
- 300VC)
- $200\sqrt{2}V$ D)
- $\frac{200}{\sqrt{3}}V$ E)

Correct Answer : Option B

- **104.** Mobility is the drift velocity per unit
 - A) charge
 - volume B)
 - electric field C)
 - current D)
 - E) time

Correct Answer : Option C

The resistivity of a metallic wire is directly proportional to $(T - temperature; \tau average)$ **105.** time of collisions of free electrons; n - number of free electrons per unit volume; A - areaof cross-section)

- A) п
- B) τ
- A C)
- $\frac{1}{n}$ D)
- $\frac{1}{T}$ E)

Correct Answer : Option D

106. Gyromagnetic ratio of an electron is the ratio between

- A) charge and angular momentum
- B) magnetic moment and angular acceleration
- c) magnetic moment and angular momentum
- **D**) charge and angular momentum
- E) magnetic moment and angular velocity

Correct Answer : Option C

107. For a circular coil carrying current, the thumb in the right hand thumb rule gives the direction of

- A) magnetic field
- B) Current
- c) induced emf
- D) electric field
- E) electric force

Correct Answer : Option A

108. In synchrotron, the required high magnetic fields are generated by

- A) solenoid only
- B) electromagnet only
- c) toroid only
- D) solenoid and electromagnet
- E) solenoid and toroid

Correct Answer : Option E

109. The power required to push the arm of a rectangular conductor with a constant speed v in a motor is directly proportional to

- A) v
- B) v^2
- c) \sqrt{v}
- D) $\sqrt[3]{v}$
- E) v^3

Correct Answer : Option B

110. A 1 kW bulb radiates light uniformly in all directions. The intensity at a point on the surface of the surrounding sphere of area 200 m² is (in Wm $^{-2}$)

- **A**) 2
- **B**) 4
- **C**) 5

- **D**) 6
- E) 8

Correct Answer : Option C

- **111.** The transverse nature of electromagnetic waves is confirmed by the phenomenon of
 - A) diffraction
 - **B**) polarization
 - c) photoelectric effect
 - D) interference
 - E) total internal reflection

Correct Answer : Option B

112. If two waves of equal amplitude A and opposite phase interfere, the amplitude of the resultant wave is

- **A**) A
- **B**) 2A
- **C**) A/2
- **D**) 0
- E) A^2

Correct Answer : Option D

- **113.** At the lowest point of the plot of angle of deviation versus the angle of incidence of a triangular prism, the angle of incidence is equal to
- A) the angle of refraction at the first face
- B) the angle of refraction at the second face
- c) the angle of emergence
- **D**) the angle of prism
- E) half of the angle of prism

Correct Answer : Option C

114. Plane polarized light can be produced by the phenomenon of

- A) reflection
- B) dispersion
- **c**) diffraction
- D) scattering
- E) interference

Correct Answer : Option A

- **115.** Above the threshold frequency, if the intensity of incident light falling on a photo sensitive material is increased, then the correct statement is:
- A) The number of emitted electrons increases
- B) The maximum kinetic energy of electrons increases

- The stopping potential increases C)
- D) The number of electrons emitted decreases
- The stopping potential decreases E)

Correct Answer : Option A

The ratio between the wavelengths of the air column vibrating in the first two modes in an 116. open organ pipe is

- 2:1 A)
- 1:2 B)
- 1:1C)
- 1:3 D)
- 6:1 E)

Correct Answer : Option A

- **117.** Light of wavelength $\frac{36}{5R}m$ is emitted by a hydrogen atom during the transition of electrons from the state
 - A) n = 3 to n = 2
 - **B**) n = 4 to n = 1
 - c) n = 4 to n = 2
 - n = 4 to n = 3D)
 - n = 3 to n = 1
 - E)

Correct Answer : Option A

118. 75% of 234 ₉₀Th decays in *t* years. Its half-life is (in years):

- A) t
- $\frac{t}{2}$ B)
- 2tC)
- 4tD)
- $\frac{t}{4}$
- E)

Correct Answer : Option B

119. The I-V characteristic of a semiconductor diode in forward bias is a/an:

- straight line A)
- parabolic curve B)
- exponentially decreasing curve C)
- exponentially increasing curve D)
- sinusoidal curve E)

Correct Answer : Option D

120. The pn junction diode acts as a rectifier because:

- A) it conducts in both directions
- B) it blocks current in reverse bias
- c) it allows ac to pass
- D) it amplifies the signal
- E) it offers a phase difference between voltage and current

Correct Answer : Option B

- **121.** Which of the following has the highest molar mass?
- (Atomic mass: N=14, O=16, Ag=108, Pb=208, Na=23, H=1, K=39)
- A) Silver nitrate
- B) Lead nitrate
- c) Ammonium nitrate
- D) Sodium nitrate
- E) Potassium nitrate

Correct Answer : Option B

- **122.** When the uncertainty in momentum is zero then the uncertainty in the position of a particle is
 - **A**) h/4π
 - в) 1
 - **c**) 2
 - D) ¹/₂
 - E) infinity

Correct Answer : Option E

123. Which of the following statement is NOT true with Bohr's model of atom?

- A) It accounts the stability and line spectra of He^+
- B) It fails to account for the finer details of the hydrogen atom spectrum by using sophisticated spectroscopic techniques.
- c) It is unable to explain the spectrum of atom/ion which possess only two electrons.
- **D**) It only explains about the splitting of spectral lines in the presence of electric field.
- E) It is unable to explain the ability of atoms to form molecules by chemical bonds.

Correct Answer : Option D

- **124.** Which of the following statement is INCORRECT with p-block elements?
 - A) p-Block elements comprise of Group 13 to Group 18.
 - B) The outer electronic configuration of p-block elements is ns² p^{1-6} .
 - c) Halogens belongs to Group 16.
 - **D**) Gallium and Bromine are liquids.
 - E) The zero group elements having general formula ns2p6 are inert, because their energy levels are completely filled.

Correct Answer : Option C

125. Which of the following molecule has zero dipole moment?

- A) BF₃
- **B**) CH_2CI_2
- c) NH₃
- D) SO₂
- E) NF₃

Correct Answer : Option A

Types of system and their definitions are given below:

	System	Definition
	(a) Closed system	(i) A system which can exchange both energy and matter with surrounding
126.	(b) Open system	(ii) A system which cannot exchange matter or energy with surrounding
	(c) Isolated system (iii) A system consisting of single phase	
	(d) Homogeneous system	(iv) A system consisting of many phases
	(e) Heterogeneous system	(v) A system which can exchange only energy
		with surrounding
	Choose the correct m	atch from the following codes:
A)	(a)-(i), (b)-(ii), (c)-(iii)	, (d)-(iv), (e)-(v)

- B) (a)-(ii), (b)-(i), (c)-(iii), (d)-(iv), (e)-(v)
- c) (a)-(i), (b)-(ii), (c)-(iv), (d)-(iv), (e)-(iii)
- D) (a)-(v), (b)-(i), (c)-(ii), (d)-(iii), (e)-(iv)
- E) (a)-(v), (b)-(ii), (c)-(i), (d)-(iii), (e)-(iv)

Correct Answer : Option D

The $\Delta_r H^\circ$ for the following reaction at 25°C is Ag⁺ (aq) + Cl⁻ (aq) \longrightarrow AgCl (s)

127. (Given: $\Delta_{\gamma} H^{\circ}$ (Ag⁺, aq) = 105.6 kJ mol⁻¹,

```
\Delta_{\gamma}H° (Cl<sup>-</sup>, aq) = -167.2 kJ mol<sup>-1</sup> and
```

$$\Delta_{\gamma}$$
H° (AgCl, s) = -127.1 kJ mol⁻¹)

- A) 6.0 kJ mol⁻¹
- **B**) 65.5 kJ mol⁻¹
- **C**) -65.5 kJ mol⁻¹
- **D**) -6.0 kJ mol⁻¹
- E) 100 kJ mol⁻¹

Correct Answer:-Question Cancelled

128. The pH of a solution is 4 then it's OH^- ion concentration (in mol dm⁻³) is

- **A**) 10^{-4}
- **B**) 10⁻¹⁰
- **c**) 10^{-2}
- **D**) 10^{-12}
- E) 10^{-6}

Correct Answer : Option B

4 g of NaOH were dissolved in 1 litre of a solution containing 1 mole of CH₃COOH and 1

129. mole of CH_3COONa . The $[H^+]$ in the resultant solution is

(Given: Ka (CH₃COOH) = 1.1×10^{-5})

- **A**) 1.47 ×10⁻⁵M
- **B**) 2×10⁻⁵M
- **c**) 2.5×10^{-5} M
- **D**) 1.5×10⁻⁵M
- **E**) 0.9×10⁻⁵M

Correct Answer : Option E

130. Which of the following statement is INCORRECT for the concept of oxidation?

- A) Addition of oxygen
- B) Removal of hydrogen
- c) Decreases in number of positive charges
- D) Decreases in number of negative charges
- E) Removal of an electron

Correct Answer : Option C

131. Which of the following statement is true for the electrochemical, Daniel cell?

- A) Electrons flow from copper electrode to zinc electrode.
- **B**) Current flows from zinc electrode to copper electrode.
- c) Cation moves toward copper electrode.
- **D**) Cation moves toward zinc electrode
- E) Reduction occurs at cathode.

Correct Answer:-Question Cancelled

132. The osmotic pressure of 0.01 M aqueous solution of urea at 300 K is $(R = 0.082 \text{ lit atm mol}^{-1})$

- A) 0.0082 atm
- **B**) 0.082 atm
- **c**) 2.46 atm
- **D**) 24.6 atm

E) 0.246 atm

Correct Answer : Option E

133. The first order rate constant for the decomposition of N_2O_5 is 6.93×10^{-4} sec⁻¹. Its half-life period is

- **A**) 1000 s
- **B**) 100 s
- **c**) 10 s
- **D**) 1s
- **E**) 10000 s

Correct Answer : Option A

134. Which of the following is a zero order reaction?

- A) Decomposition of H_2O_2 catalysed by iodide in alkaline medium.
- B) Artificial radioactive decay of unstable nuclei.
- c) Decomposition of N_2O_5
- **D**) Decomposition of N_2O
- E) Decomposition of gaseous ammonia on a hot platinum surface.

Correct Answer : Option E

135. Which of the following outermost electronic configuration of the element shows the highest oxidation state?

- A) $3d^34s^2$
- **B**) 3d⁵4s¹
- C) $3d^54s^2$
- D) $3d^64s^2$
- **E**) $3d^{2}4s^{2}$

Correct Answer : Option C

136. CrO₃ is a/an

- A) acidic oxide
- B) basic oxide
- c) neutral oxide
- D) amphoteric oxide
- E) reducing agent

Correct Answer : Option A

- **137.** Which of the following statement is INCORRECT?
- A) Transition metals and many of their compounds show paramagnetic behaviour.

- B) The enthalpies of atomisation of the transition metals are high.
- c) The transition metals generally form coloured compounds.
- **D**) Transition metals and their many compounds act as good catalyst.
- E) Zn, Cd and Hg are very hard and have very low volatility.

Correct Answer : Option E

138. The correct order of ionic radii of Ce, La, Pm and Yb in +3 oxidation state is

A)
$$La^{3+} < Pm^{3+} < Ce^{3+} < Yb^{3+}$$

- **B**) $La^{3+} < Ce^{3+} < Pm^{3+} < Yb^{3+}$
- **c**) $Yb^{3+} < Ce^{3+} < Pm^{3+} < La^{3+}$
- **D**) $Yb^{3+} < Pm^{3+} < Ce^{3+} < La^{3+}$
- **E**) $La^{3+} > Pm^{3+} > Ce^{3+} > Yb^{3+}$

Correct Answer : Option D

139. The IUPAC name of [Fe(CO)₅] is

- A) Pentacarbonylferrate(0)
- B) Pentacarbonylferrate(III)
- **c**) Pentacarbonyliron(0)
- D) Pentacarbonyl iron(II)
- E) Pentacarbonylferrate(II)

Correct Answer : Option C

- **140.** The isomerism exhibited by the octahedral complex $[Co(NH_3)_4Br_2]Cl$ is
 - A) Geometrical
 - B) Optical
 - c) Linkage
 - **D**) Coordination
 - E) Ionisation

Correct Answer:-Question Cancelled

- 141. Which of the following is not a electron withdrawing group?
 - A) -CN
 - **в**) -NO₂
 - c) -COOH
 - D) -COOR
 - E) -OCH₃

Correct Answer : Option E

- 142. Which of the following statement is INCORRECT with Kolbe's electrolytic process?
 - A) Ethane can be prepared by this method.
 - **B**) Presence of alkyl groups in α -position decrease the yield of alkanes.

- c) The reaction proceeds via methyl free radical.
- **D**) At anode alkane and CO_2 gas is formed.
- E) An alkane obtained at anode contains odd number of carbon atoms.

Correct Answer : Option E

- **143.** Which of the following hydrocarbon pair have the highest boiling point and highest melting point respectively?
- A) Eicosane and Methane
- **B**) Eicosane and Decane
- c) Eicosane and 2,2-Dimethylpropane
- **D**) Eicosane and 2-Methylbutane
- E) 2,2-Dimethylpropane and Eicosane

Correct Answer : Option C

144. The order of reactivity towards $S_N 2$ reaction among the following is (a)CH₃Cl (b)CH₃CH(Cl)CH₃ (c) (CH₃)₃CCl (d) CH₃CH₂Cl

```
A) a>d>b>c
```

- **B**) a>b>c>d
- **c**) a > c > d > b
- **D**) b>a>c>d
- **E**) c>b>d>a

Correct Answer : Option A

145. The correct decreasing order of acidic strength is

- A) $C_6H_5OH > p-CH_3-C_6H_4OH > m-CH_3-C_6H_4OH > C_2H_5OH$
- $\mathsf{B}) \quad \mathsf{C}_2\mathsf{H}_5\mathsf{OH} > m\text{-}\mathsf{CH}_3\text{-}\mathsf{C}_6\mathsf{H}_4\mathsf{OH} > p\text{-}\mathsf{CH}_3\text{-}\mathsf{C}_6\mathsf{H}_4\mathsf{OH} > \mathsf{C}_6\mathsf{H}_5\mathsf{OH}$
- **c**) m-CH₃-C₆H₄OH >C₆H₅OH >p-CH₃-C₆H₄OH > C₂H₅OH
- **D**) $C_6H_5OH > m-CH_3-C_6H_4OH > p-CH_3-C_6H_4OH > C_2H_5OH$
- E) $C_6H_5OH > m-CH_3-C_6H_4OH > C_2H_5OH > p-CH_3-C_6H_4OH$

Correct Answer : Option D

The products P_1 , P_2 , P_3 and P_4 of the following reactions are



A) P_1 = Phenol, P_2 = Salicylaldehyde, P_3 = Cyclohexanol, P_4 = Phenyl acetate,

- **B**) P_1 = Benzene, P_2 = Salicylic acid, P_3 = Cyclohexanol, P_4 = Phenyl acetate,
- c) P_1 = Phenol, P_2 = Salicylic acid, P_3 = Anisole, P_4 = Aspirin,
- **D**) P_1 = Phenol, P_2 = Salicylic acid, P_3 = Anisole, P_4 = Phenyl acetate,
- E) P_1 = Cyclohexanol, P_2 = Salicylic acid, P_3 = Phenol, P_4 = Aspirin,

Correct Answer : Option C

- 147. Which one of the following compounds undergoes HVZ reaction?
- A) C₆H₅COOH
- B) CH₃CH₂COOH
- c) Cl₃C-COOH
- D) CH₃CH₂CHO
- E) HCOOH

Correct Answer : Option B

- 148. Which of the following does not undergo Cannizarro reaction?
- A) (CH₃)₃CCHO
- B) C₆H₅CHO
- c_{0} $C_{6}H_{5}COC_{6}H_{5}$
- D) CH₃CHO
- E) HCHO

Correct Answer : Option D

In the following reaction, the final product B is



Correct Answer : Option E

Match Column I with column II.

	Column I (Vitamins)	Column II (Sources)
150.	(a) Vitamin A	(i) Sunflower oil
	(b) Vitamin B ₁	(ii) Amla
	(c) Vitamin C	(iii) Fish liver oil
	(d) Vitamin E	(iv) Yeast
۸)	$(a)_{(iii)}$ $(b)_{(i)}$ $(c)_{(ii)}$	$(d)_{-}(iy)$

- A) (a)-(III), (b)-(I), (c)-(II), (d)-(IV)
- B) (a)-(iii), (b)-(ii), (c)-(i), (d)-(iv)
- **c**) (a)-(iii), (b)-(ii), (c)-(iv), (d)-(i)
- D) (a)-(iii), (b)-(iv), (c)-(i), (d)-(ii)
- E) (a)-(iii), (b)-(iv), (c)-(ii), (d)-(i)

Correct Answer : Option E