FINAL ANSWER KEY

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Exam:KEAM 2026 - 1

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1. Let A and B be two subsets of a universal set U. If $n(U) = 116$,$N(A \cup B) = 99$, $n(B) = 61$ and $n(A \cap B) = 28$, then $n(A')$ is equal to

A) 47

B) 45

C) 53

D) 48

E) 50

Correct Answer : Option E

2. Let $f(x) = sin^{-1}x$ and $g(x) = x - 2$. To define the composite function $f \circ g$, the largest domain of $g(x)$ has to be

A) $[2, 5]$

B) $[1, 3]$

C) $[0, 2]$

D) $[-1, 3]$

E) $[-3, 3]$

Correct Answer : Option B

3. Let $f(x) = \frac{10}{7 + 4sinx + 3cosx}$,$x \in \mathbb{R}$. Then the range of the function f is

A) $[\frac{5}{7}, 5]$

B) $[\frac{5}{7}, \frac{10}{7}]$

C) $[\frac{5}{6}, 5]$

D) $[\frac{5}{3}, 5]$

E) $[\frac{5}{3}, \frac{10}{3}]$

Correct Answer : Option C

4. Let $f(x) = x^2 - 10x$ and $g(x) = e^x + 5$ for $x \in \mathbb{R}$. Then, for all x,$g(2x) - (f \circ g)(x) =$

A) 30

B) 20

C) -30

D) -20
E) 15

Correct Answer : Option A

5. If the complex number $z = x + iy$ satisfies the equation $5z - 2\overline{z} = \frac{7-7i}{1+i}$, then the value of $x + y$ is equal to

A) 7
B) -3
C) 3
D) -1
E) -7

Correct Answer : Option D

6. Let $z = 1 + i$, where $i = \sqrt{-1}$. If $z - \frac{24\overline{z}}{z^2} = \lambda\ z$, then the value of λ is equal to

A) 12
B) 13
C) 18
D) 23
E) 24

Correct Answer : Option B

7. The complex number z satisfying the equation $\frac{Re(z)}{2+i} + \frac{Im(z)}{1+2i} = \frac{3}{1-2i}$, is

A) 6-5i
B) -4+5i
C) 5-4i
D) 3-5i
E) 4-5i

Correct Answer : Option E

8. If α is a real number satisfying $\alpha^2 - \frac{1}{\alpha^2} = 2$, then the value of $\left(\alpha + \frac{i}{\alpha}\right)^{16}$ is equal to

A) 2048
B) 4096
C) 2024
D) 4048
E) 5096

Correct Answer : Option B

9. The sum of the first two terms of a geometric series is 12 and the third term is 16. Then the common ratio r > 0 of the geometric progression is

A) $\frac{1}{2}$

B) $\frac{2}{3}$

C) 2

D) 3

E) $\frac{3}{2}$

Correct Answer : Option C

10. The sum of four consecutive terms in a geometric progression is 960. If the fourth term is 8 times as large as the first term, then the smallest number in the geometric progression is

A) 40

B) 64

C) 128

D) 160

E) 240

Correct Answer : Option B

11. If $cos\,\theta$,$\sqrt{2}sin\,\theta$ and $\sqrt{3}tan\,\theta$, where $0 < \theta < \frac{\pi}{2}$, are the second, third and fourth terms of a geometric series, respectively, then the first term of the geometric series is

A) $\frac{1}{2\sqrt{6}}$

B) $\frac{3}{2\sqrt{6}}$

C) $\frac{1}{\sqrt{6}}$

D) $\frac{3}{\sqrt{6}}$

E) $\frac{2}{\sqrt{6}}$

Correct Answer : Option A

12. The A.M. and G.M. of two positive real numbers a and b $(a > b)$ are A and G respectively. If $A: G = 5: 3$,
then $a^2 + b^2 : ab =$

A) 83:9

B) 82:9

C) 83:6

D) 82:7

E) 9:1

Correct Answer : Option B

13. Let S be the set of all 3-digit numbers containing the digits 3, 5 and 7 without repetition. The sum of all numbers in S is

A) 3330
B) 2220
C) 4590
D) 1110
E) 4440

Correct Answer : Option A

14. There are 3 boys and 4 girls in a group. The number of ways they can sit in a row so that between any two boys there is a girl and between any two girls there is a boy, is

A) 88
B) 96
C) 124
D) 144
E) 288

Correct Answer : Option D

15. Let $(2-x)^9 = a_0 + a_1x + a_2x^2 + \ldots\ldots + a_9x^9$. Then the value of $a_1 + a_2 + a_3 + \ldots\ldots + a_8$ is equal to

A) -511
B) 510
C) -512
D) 512
E) -510

Correct Answer : Option E

16. The number of arrangements of the letters of the word BANANA so that the arrangement starts and ends with the same letter, is

A) 12
B) 16
C) 18
D) 20
E) 24

Correct Answer : Option B

17. If the coefficient of x^3 in the binomial expansion of $(2+x)^n$ is 160, then the coefficient of x^6 in the binomial expansion of $(2-x^2)^n$ is

A) 160

B) 320
C) -160
D) -320
E) -960

Correct Answer : Option C

18. A system of equations is given in the matrix form as $\begin{pmatrix} \alpha & 2 & 3 \\ 2 & 3 & -\alpha \\ 3 & 5 & \alpha+1 \end{pmatrix}\begin{pmatrix} x \\ y \\ z \end{pmatrix}=\begin{pmatrix} 2 \\ 3 \\ 5 \end{pmatrix}$, where α is an integer. If the system of equations does not have a unique solution, then the value of α is equal to

A) 1
B) 2
C) 3
D) 4
E) 5

Correct Answer : Option A

19. Let $A=\begin{bmatrix} 2 & x \\ 3 & 1 \end{bmatrix}, B=\begin{bmatrix} 3 & 2 \\ 1 & 4 \end{bmatrix}$ and $C=\begin{bmatrix} 3x+2 & 10 \\ 14-x & 10 \end{bmatrix}$. If $B^TA^T=C$, then the value of x is equal to

A) 1
B) 2
C) 3
D) 4
E) 5

Correct Answer : Option B

20. The roots of the equation $\begin{vmatrix} 2 & -2 & 4 \\ -5 & x+2 & -10 \\ -1 & 1 & x+1 \end{vmatrix}=0,$ are

A) 3,-3
B) 0,5
C) 6,-6
D) 5,-5
E) 0,-5

Correct Answer : Option A

21. Let A be a non-singular square matrix of order 3. If $A^2-A=20\,I$, where I is the unit matrix of order 3, then $A^{-1}=$

A) $20\,A$

B) $\frac{1}{20}(A-I)$

C) $20(A-I)$

D) $\frac{1}{20}\ A$

E) $\frac{1}{20}\ A^2$

Correct Answer : Option B

22. The solution set of the inequality $6(2x+3)+x>53-2x$ is

A) $\left(\frac{7}{3},\infty\right)$

B) $\left(-\infty,\frac{7}{3}\right)$

C) $\left(\frac{7}{3},2\right)$

D) $\left(-2,\frac{7}{3}\right)$

E) $\left(-\frac{7}{3},\infty\right)$

Correct Answer : Option A

23. In a right-angled trapezium $ABCD$,$\angle A=90^o$,$\angle D=90^o$, $AB=7a+1$, $CD=3a+1$ and $AD=3\text{a}$. If the perimeter of the trapezium is greater than 56 but less than 92, then the range of possible values of a , is

A) $4<a<\frac{11}{2}$

B) $\frac{7}{2}<a<5$

C) $3<a<\frac{9}{2}$

D) $3<a<7$

E) $3<a<5$

Correct Answer : Option E

24. The value of the product $\cot 10^o\cot 20^o\cot 30^o\cot 45^o\cot 60^o\cot 70^o\cot 80^o$ is equal to

A) $\sqrt{3}$

B) $\frac{\sqrt{3}}{3}$

C) 3

D) $3\sqrt{3}$

E) 1

Correct Answer : Option E

25. If $\tan\alpha = \frac{1}{2}$, then the value of $tan^2(2\alpha)sec^2(2\alpha)$ is equal to

A) $\frac{200}{9}$

B) $\frac{400}{9}$

C) $\frac{200}{81}$

D) $\frac{400}{81}$

E) $\frac{200}{27}$

Correct Answer : Option D

26. If $(3cosx - 2secx)^2 = 9cos^2x + 4tan^2x + k$, where k is a constant, then the value of k is equal to

A) 12

B) -12

C) -4

D) 8

E) -8

Correct Answer : Option E

27. If α and β are real constants such that $\alpha - \beta = \frac{\pi}{4}$, then the value of $(sin\alpha + sin\beta)^2 + (cos\alpha + cos\beta)^2$ is equal to

A) 2

B) $\sqrt{2}$

C) $2\sqrt{2}$

D) $2+\sqrt{2}$

E) $2-\sqrt{2}$

Correct Answer : Option D

28. If $cos^{-1}(x-2) = sin^{-1}(y+1)$ then the variables x and y satisfy the equation

A) $x^2 + y^2 - 4x + 2y + 4 = 0$

B) $x^2 + y^2 - 4x + 2y + 5 = 0$

C) $x^2 + y^2 - 4x + 2y + 6 = 0$

D) $x^2 + y^2 - 2x + y + 4 = 0$

E) $x^2 + y^2 + 4x + 2y + 4 = 0$

Correct Answer : Option A

29. If $2cot^{-1}\left(\frac{4}{3}\right) = cos^{-1}\left(\frac{x}{5}\right)$, then the value of x is equal to

A) $\frac{3}{25}$

B) $\frac{7}{25}$

C) $\frac{3}{5}$

D) $\frac{7}{5}$

E) $\frac{5}{7}$

Correct Answer : Option D

30. The point $P\left(\frac{1}{6}, \alpha\right)$, where α is a constant, lies on the curve with equation $sin^{-1}(3x) + 2sin^{-1}(y) = \frac{\pi}{2}, \ |x| \leq \frac{1}{3}, \quad |y| \leq 1,$ then the value of α is equal to

A) $\frac{1}{2}$

B) 2

C) $\frac{1}{4}$

D) 4

E) 0

Correct Answer : Option A

31. Let *O* be the origin and *P* be a point on a line such that *OP* is perpendicular to that line. If *OP* makes an obtuse angle α with the *x*-axis, *OP* = 5 and $sin\,\alpha = \frac{3}{5}$, then the equation of the line is

A) $3x - 4y - 25 = 0$

B) $4x + 3y + 25 = 0$

C) $3x - 4y + 25 = 0$

D) $4x - 3y - 25 = 0$

E) $4x - 3y + 25 = 0$

Correct Answer : Option E

32. If the equation of the straight line passing through the points (3,-4) and (4,*a*) is *x*-*y* =7 , then the value of *a* is equal to

A) 3

B) 2

C) -3

D) -2

E) 0

Correct Answer : Option C

33. The straight line passing through the points (1,5) and (3,-5) meets the coordinate axes at the points *A* and *B*. Then the area of the triangle Δ *OAB*, where *O* is the origin, is

A) 2

B) 4

C) 5

D) 8

E) 10

Correct Answer : Option E

34. The area of the circle $x^2 + y^2 + 8x - 6y + c = 0$ is 75π . Then the value of c is equal to

A) -50

B) 50

C) 25

D) -25

E) -40

Correct Answer : Option A

35. If the foci of the hyperbola $\frac{x^2}{a^2} - \frac{y^2}{b^2} = 1$ coincide with the foci of the ellipse $\frac{x^2}{49} + \frac{y^2}{36} = 1$, then the value of $a^2 + b^2$ is equal to

A) 25

B) 36

C) 85

D) 169

E) 13

Correct Answer : Option E

36. The vertex of the parabola $2y = -3x^2 + 48x - 200,$ is

A) (8,-8)

B) (8,-6)

C) (-4,8)

D) (8,-4)

E) (-4,-8)

Correct Answer : Option D

37. If the distance between the foci of an ellipse is 4 and its eccentricity is $\frac{1}{2}$, then the length of its latus rectum is

A) 4

B) 8

C) 6

D) 12

E) 10

Correct Answer : Option C

38. The position vectors of the points *A* and *B* are $\vec{a} = 2\hat{\imath} - \lambda\ \hat{\jmath} + 5\hat{k}$ and $\vec{b} = \mu\ \hat{\imath} + 7\hat{\jmath} + 3\hat{k}$ respectively. If the position vector of the mid-point of the line segment *AB* is $\vec{c} = 3\hat{\imath} + 2\hat{\jmath} + 4\hat{k}$, then the value of $\lambda + \mu$ is equal to

A) 6

B) 7

C) 8

D) 9

E) 10

Correct Answer : Option B

39. Let θ be the angle between the unit vectors $\hat{a}$ and $\hat{b}$. If $|\hat{a} - \hat{b}| = \frac{\sqrt{3}}{2}$, then the value of $cos\,\theta$ is

A) $\frac{3}{8}$

B) $\frac{1}{2}$

C) $\frac{5}{8}$

D) $\frac{3}{4}$

E) $\frac{7}{8}$

Correct Answer : Option C

40. If $\vec{a} = 4\hat{\imath} + \lambda\ \hat{\jmath} - 6\hat{k}$ and $\vec{b} = -6\hat{\imath} + 12\hat{\jmath} + 9\hat{k}$ are collinear, then the value of λ is equal to

A) -4

B) 4

C) -6

D) -8

E) 8

Correct Answer : Option D

41. Let $P(2, 1, -3)$ be a given point. If the point Q is such that $\vec{PQ} = 3\hat{i} - \hat{j} + 5\hat{k}$, then the distance of Q from the origin O is

A) $\sqrt{29}$

B) $\sqrt{33}$

C) $\sqrt{59}$

D) $\sqrt{69}$

E) $\sqrt{79}$

Correct Answer : Option A

42. If the straight line passing through the points (1,-1,2) and (3,2,8) makes angle β with the *y*-axis, then the value of $cos\,\beta$ is equal to

A) $\frac{1}{7}$

B) $\frac{3}{7}$

C) $\frac{2}{7}$

D) $\frac{4}{7}$

E) $\frac{5}{7}$

Correct Answer : Option B

43. A unit vector parallel to the straight line $\vec{r} = -(5 + 4s)\hat{i} + (7 - 2s)\hat{j} + (3 + 4s)\hat{k}$, where s is the parameter of the line, is

A) $\frac{-2\hat{i} - \hat{j} + 2\hat{k}}{3}$

B) $\frac{-2\hat{i} - \hat{j} + 2\hat{k}}{6}$

C) $\frac{-2\hat{i} - \hat{j} + 2\hat{k}}{5}$

D) $\frac{-2\hat{i} - \hat{j} + 2\hat{k}}{4}$

E) $\frac{-2\hat{i} - \hat{j} + 2\hat{k}}{7}$

Correct Answer : Option A

44. The shortest distance from the point (-10,10,-10) to the *z*-axis, is

A) $2\sqrt{10}$

B) $10\sqrt{3}$

C) 10

D) $3\sqrt{10}$

E) $10\sqrt{2}$

Correct Answer : Option E

45. The straight line passing through the points (3,2,3) and (5,-1,-2) is perpendicular to the straight line passing through the points(1,3,1) and (α, α, α) . Then the value of α is equal to

A) 1

B) 2

C) 3

D) 4

E) 5

Correct Answer : Option B

46. There are 20 boys and 5 girls in a class. Three students are selected at random. If *E* is an event of selecting one boy and two girls, then *P(E)* is equal to

A) $\frac{1}{23}$

B) $\frac{4}{23}$

C) $\frac{5}{23}$

D) $\frac{3}{23}$

E) $\frac{2}{23}$

Correct Answer : Option E

47. A die is rolled twice. Let *A* be an event of getting 1 in the first roll and let *B* be an event of getting 4 in the second roll. Then *P(A|B)* is equal to

A) $\frac{1}{6}$

B) $\frac{1}{3}$

C) $\frac{1}{9}$

D) $\frac{1}{18}$

E) $\frac{1}{36}$

Correct Answer : Option A

48. Given the data: 5, 7, 9, 11, 13. The variance of the data, is

A) 11

B) 10

C) 9

D) 8

E) 7

Correct Answer : Option D

49. The mean of the data : 4, 7, x, 13, 16 is 10. Then the mean deviation of the data is

A) 3

B) 3.3

C) 3.6

D) 3.8

E) 4

Correct Answer : Option C

50. The value of $\lim_{x \to 0} \frac{x - tan(3x)}{sin(2x)}$ is equal to

A) $-\frac{3}{2}$

B) $\frac{2}{3}$

C) -2

D) 1

E) -1

Correct Answer : Option E

51. Let $f(x) = \begin{cases} \frac{1-\sec^2(\alpha x)}{\alpha x^2}, & \text{for } x \neq 0 \\ -3, & \text{for } x = 0 \end{cases}$ be continuous at $x = 0$. Then the value of α is equal to

A) -3

B) 3

C) 1

D) -1

E) 9

Correct Answer : Option B

52. Let $f(x) = \frac{1}{1 + tanx}, 0 < x < \frac{\pi}{2}$. Then $f^{-1}(x) =$

A) $\frac{1 - tanx}{tanx}$

B) $tan^{-1}\left(\frac{x}{1+x}\right)$

C) $tan^{-1}\left(\frac{1-x}{x}\right)$

D) $tan^{-1}\left(\frac{x}{1-x}\right)$

E) $\frac{tanx}{1-tanx}$

Correct Answer : Option C

53. Let $f(x)=\frac{(\sqrt{x+3})(\sqrt{x}-1)}{x-1}$ for $x \neq 1$. Then $\lim_{x \to 1} f(x)$ is equal to

A) 2

B) 4

C) $\sqrt{2}$

D) 1

E) 0

Correct Answer : Option D

54. Let $f(x)=log_e(9x)$ for $x>0$ and $h(x)=f(x)+f(x^2)+f(x^3)$. Then the value of $h\left(\frac{1}{3}e^{\frac{1}{3}}\right)$ is equal to

A) 1

B) 2

C) 3

D) 4

E) 5

Correct Answer : Option B

55. The point $P(x,y)$, where $y=4log_e(2)$, lies on the curve with equation $y=log_e($ $x^3+24)$. Then the value of $\frac{dy}{dx}$ at the point P is

A) $\frac{-3}{8}$

B) $\frac{3}{8}$

C) $\frac{-3}{4}$

D) $\frac{3}{4}$

E) $\frac{1}{4}$

Correct Answer : Option D

56. A cubic curve $y=f(x)$ passes through the points (1,-7) and (2,11) . If $\frac{dy}{dx}=6x^2+k$

$x - 5$, where k is a constant, then $f(x)$ =

A) $2x^3 + 6x^2 - 5x - 7$

B) $2x^3 + 3x^2 - 5x - 7$

C) $2x^3 + 3x^2 - 5x - 4$

D) $2x^3 + 3x^2 - 5x - 5$

E) $2x^3 + 6x^2 - 5x - 5$

Correct Answer : Option B

57. Let $y = 4e^{-x} - 2e^{-2x} - e^{-3x}, x \in \mathbb{R}$. If $\frac{d^2y}{dx^2} = e^{\alpha x}(4e^{2x} - 8e^{x} - 9)$ for all *x*, then the value of the constant α is

A) -3

B) -2

C) 3

D) 2

E) -1

Correct Answer : Option A

58. If $y = 4\sqrt{x}$, then $\frac{d^2y}{dx^2} =$

A) $\frac{8}{y^2}\frac{dy}{dx}$

B) $\frac{-4}{y^2}\frac{dy}{dx}$

C) $\frac{-8}{y^2}\frac{dy}{dx}$

D) $\frac{-2}{y^2}\frac{dy}{dx}$

E) $\frac{4}{y^2}\frac{dy}{dx}$

Correct Answer : Option C

59. Let $f(x) = \frac{1 + tan^2x}{1 - tan^2x}$ for $0 < x < \frac{\pi}{4}$ .Then the value of $f'(\frac{\pi}{8})$ is equal to

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

B) $\sqrt{2}$

C) $2\sqrt{2}$

D) 1

E) 0

Correct Answer : Option C

60. If the maximum value of the function $f(x) = \alpha - 4x - x^2$ is 1, then the value of α is equal to

A) -3

B) 3

C) -5

D) 5

E) 0

Correct Answer : Option A

61. The surface area of a cube is increasing at the constant rate of 0.5 cm^2 /s . Then the rate at which the volume of the cube is increasing (in cm^3/s), when its surface area has reached 12 cm^2, is

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

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

C) $\frac{1}{3\sqrt{2}}$

D) $\frac{1}{4\sqrt{2}}$

E) $\frac{1}{6\sqrt{2}}$

Correct Answer : Option D

62. Let $f(x) = \frac{1}{3\sqrt{x}}(\frac{2}{x} - 3), x > 0$. Then $f(x)$ is decreasing in

A) (1,4)

B) (0,3)

C) (1,3)

D) (2,5)

E) (0,2)

Correct Answer : Option E

63. Let $f(x) = sinxsin\left(x + \frac{\pi}{3}\right)\ x \in \mathbb{R}$. Then the minimum value of f is equal to

A) $\frac{1}{4}$

B) $\frac{-1}{4}$

C) $\frac{3}{4}$

D) $\frac{-3}{4}$

E) $\frac{3}{2}$

Correct Answer : Option B

64. $\int \frac{xcos2x}{cosx - sinx} dx =$

A) $x(sinx - cosx) + cosx + sinx + C$

B) $x(cosx - sinx + C$

C) $x(sinx + cosx) + sinx - cosx + C$

D) $x(sinx + cosx) - cosxsinx + C$

E) $xcosxsinx + C$

Correct Answer : Option A

65. $\int (cot2x + cosec2x)dx =$

A) $2log_e \mid sinx \mid + C$

B) $\frac{1}{2} log_e \mid sinx \mid + C$

C) $log_e \mid cosx \mid + C$

D) $2log_e \mid cosx \mid + C$

E) $log_e \mid sinx \mid + C$

Correct Answer : Option E

66. If $\int \frac{5\sqrt{x}(4x^2 - 1)}{x} dx = 8\sqrt{x^5} + a\sqrt{x} + C$, where a is a constant and C is the constant of integration, then the value of a is

A) 20

B) -20

C) -10

D) 10

E) -8

Correct Answer : Option C

67. $\int \frac{x^2 + 6x + 1}{(x + 3)^2} dx =$

A) $x - \frac{8}{x + 3} + C$

B) $x - \frac{16}{x + 3} + C$

C) $x + \frac{8}{x + 3} + C$

D) $x + \frac{16}{x + 3} + C$

E) $x + \frac{4}{x + 3} + C$

Correct Answer : Option C

68. $\int \frac{\sqrt{\sqrt{x}+1}}{\sqrt{x}}\,dx =$

A) $\frac{4}{3}\left(\sqrt{x}+1\right)^{\frac{3}{2}}+C$

B) $\frac{2}{3}\left(\sqrt{x}+1\right)^{\frac{3}{2}}+C$

C) $\frac{4}{3}\left(\sqrt{x}+1\right)^{\frac{3}{4}}+C$

D) $\frac{1}{3}\left(\sqrt{x}+1\right)^{\frac{3}{2}}+C$

E) $\frac{3}{4}\left(\sqrt{x}+1\right)^{\frac{3}{2}}+C$

Correct Answer : Option A

69. The value of $\int_{-1}^{1} \frac{log_e(1+|x|)}{1+|x|}\,dx$ is equal to

A) $\frac{1}{2}(log_e 2)^2$

B) $2(log_e 2)^2$

C) $(log_e 2)^2$

D) $log_e 2$

E) 0

Correct Answer : Option C

70. Let $f(x)=\frac{1}{20}(x-5)^2$,$x \in \mathbb{R}$. If $\int_{-5}^{5} f(x)dx = \int_{5}^{a} f(x)dx$, where $a>5$ is a real constant, then the value of a is equal to

A) 10

B) 12

C) 15

D) 18

E) 20

Correct Answer : Option C

71. A curve with equation $y=x^3-8x^2+16x$ meets the x-axis at the origin *O* and at a point *A*. Then the area of the region, bounded by the curve and the straight-line segment *OA*, is

A) $\frac{61}{3}$

B) $\frac{62}{3}$

C) $\frac{64}{3}$

D) $\frac{65}{3}$

E) $\frac{68}{3}$

Correct Answer : Option C

72. The value of the integral $\int_0^{\pi/2} \sqrt{cosxsin2x}\ dx$ is equal to

A) $\frac{\sqrt{2}}{3}$

B) $\frac{2\sqrt{2}}{3}$

C) $\frac{2}{3}$

D) $\frac{2}{3\sqrt{2}}$

E) $\frac{3\sqrt{2}}{2}$

Correct Answer : Option B

73. The general solution of the differential equation $x^3\frac{dy}{dx} + 3x^2y = cosx$ is

A) $y = \frac{sinx}{x^3} + C$

B) $y = \frac{sinx}{x^3} + Cx$

C) $y = \frac{sinx}{x^2} + C$

D) $y = \frac{sinx + C}{x^2}$

E) $y = \frac{sinx + C}{x^3}$

Correct Answer : Option E

74. The integrating factor of the differential equation $2dy = (y + cosx)dx$ is

A) e^{-2x}

B) $e^{-x/2}$

C) e^{2x}

D) $e^{x/2}$

E) $-e^{x/2}$

Correct Answer : Option B

75. The minimum of the following linear programming problem occurs at:
Minimize $C = 7x + 10y$
subject to $x + y \geq 3, x + 2y \geq 4, x, y \geq 0$

A) (3,0)
B) (4,0)
C) (0,2)
D) (2,1)
E) (0,3)

Correct Answer : Option D

76. The dimensions of Planck's constant are the same as those of

A) energy
B) power
C) angular frequency
D) angular momentum
E) linear momentum

Correct Answer : Option D

77. The number of significant figures in 50000.040×10^{-3} is

A) 8
B) 3
C) 5
D) 6
E) 7

Correct Answer : Option A

78. A car travels half the distance with a velocity of 20 kmh^{-1} and another half distance with a velocity of 30 kmh^{-1} along a straight road. The average velocity of the car in km h^{-1} is

A) 35
B) 25
C) 48
D) 50
E) 24

Correct Answer : Option E

79. A vector is given as $\vec{A} = 3\hat{j} - 4\hat{k}$. The vector parallel to $\vec{A}$ and magnitude the same as that of the vector $\hat{i} - 2\hat{j}$ is

A) $\frac{1}{3}(3\hat{i} - 4\hat{k})$

B) $\sqrt{5}(3\hat{i} - 2\hat{j})$

C) $\frac{1}{5}(3\hat{i} - 2\hat{j})$

D) $\frac{1}{\sqrt{5}}(3\hat{j} - 4\hat{k})$

E) $\sqrt{5}(3\hat{j} - 4\hat{k})$

Correct Answer : Option D

80. A body is projected up with a velocity of 30 ms^{-1} at an angle of 30°. The ratio of maximum height reached to the height reached in the first second is $(g = 10ms^{-2})$

A) 10 : 9

B) 10 : 8

C) 9 : 8

D) 9 : 5

E) 5 : 4

Correct Answer : Option C

81. The linear momentum of a particle as a function of time is given as $p = (3t^2 + 2t + 1)$ $kgms^{-1}$. Then, the force acting on the particle at $t = 3s$ will be

A) 20 N

B) 10 N

C) 15 N

D) 2 N

E) 8 N

Correct Answer : Option A

82. What will be the maximum speed of a car on a circular road of radius 12 *m* if the coefficient of friction between the tyres and the road is 0.3? $g = 10ms^{-2}$

A) 3.6 ms^{-1}

B) 36 ms^{-1}

C) 60 ms^{-1}

D) 10 m^{s-1}

E) 6 ms^{-1}

Correct Answer : Option E

83. The kinetic energy of a body of mass 5 kg having a linear momentum 4 kg ms^{-1} is

A) 2.6 J

B) 1.6 J

C) 1.5 J

D) 2.5 J

E) 3.6 J

Correct Answer : Option B

84. In an elastic collision,

A) both momentum and kinetic energy are conserved

B) only momentum is conserved

C) only kinetic energy is conserved

D) neither kinetic energy nor momentum is conserved

E) forces involved are non-conservative forces

Correct Answer : Option A

85. If the moment of inertia, rotational kinetic energy and angular momentum of a body are I , E and L respectively, then,

A) $I = \frac{E}{L}$

B) $L = EI$

C) $E = 2IL$

D) $L = \sqrt{2EI}$

E) $2E = \frac{I}{L}$

Correct Answer : Option D

86. The torque transmitted by an engine to a rotor in 100 *Nm*. If the power of the engine is 15 *kW*, the angular speed of the engine is

A) 100 rad s^{-1}

B) 200 rad s^{-1}

C) 125 rad s^{-1}

D) 150 rad s^{-1}

E) 15 rad s^{-1}

Correct Answer : Option D

87. The height above the surface of the earth at which the acceleration due to gravity becomes $\frac{g}{9}$ in terms of radius of earth R is (g is acceleration due to gravity at the surface of the earth)

A) $\frac{R}{4}$

B) $\frac{R}{3}$

C) $\frac{R}{2}$

D) 2R

E) 3R

Correct Answer : Option D

88. The escape velocities of two planets *A* and *B* are in the ratio 2 : 3. If the ratio of their radii is 3 : 4 , then the ratio of acceleration due to gravity at the surface of the planet *A* to that at the surface of the planet *B* is

A) 4 : 9

B) 4 : 3

C) 16 : 27

D) 4 : 27

E) 16 : 9

Correct Answer : Option C

89. Two copper wires have the lengths in the ratio 1 : 2 and their radii are in the ratio 3 : 1. If they are stretched by the same force, the ratio of the respective longitudinal strains in the two wires is

A) 1 : 9

B) 9 : 1

C) 1 : 27

D) 27 : 1

E) 1 : 3

Correct Answer : Option A

90. Bernoulli's equation holds good for

A) non-viscous and incompressible fluids in turbulent flow

B) highly viscous and compressible fluids in streamline flow

C) non-viscous and compressible fluids in turbulent flow

D) highly viscous and incompressible fluids in streamline flow

E) non-viscous and incompressible fluids in streamline flow

Correct Answer : Option E

91. γ_1 is the ratio of the specific heat capacities of the rigid diatomic gas at constant pressure to that at constant volume and γ_2 is the corresponding value for a non-rigid diatomic gas molecule with an additional vibrational mode, then the ratio of γ_1 to γ_2 is

A) 49 : 45

B) 7 : 5

C) 9 : 7

D) 7 : 9

E) 49 : 30

Correct Answer : Option A

92. A carnot engine works between the temperatures 327^{o}C and 227^{o}C. If the work output of the engine is 1 *kJ*, then the amount of heat absorbed by the engine is

A) 2 kJ

B) 6 kJ

C) 30 kJ

D) 3 kJ

E) 40 kJ

Correct Answer : Option B

93. When a monoatomic gas at a pressure *P* is suddenly compressed to $(\frac{1}{8})$ of its original volume, the pressure of the gas becomes

A) 8P

B) 5P

C) 3P

D) 32P

E) 16P

Correct Answer : Option D

94. The root mean square velocity of a gas molecule is 100 ms^{-1}. The mass of the molecule is increased four times keeping the temperature constant. Then, the root mean square velocity is

A) 25 ms^{-1}

B) 50 ms^{-1}

C) 75 ms^{-1}

D) 2500 ms^{-1}

E) 125 ms^{-1}

Correct Answer : Option B

95. The mean free path of moving gas molecules is expressed as $\alpha \propto n^x d^y$ where n is the number of molecules per unit volume and d is the size of the molecules. Then the values of x and y respectively , are

A) 2,-2

B) -1,-2

C) 1,2

D) 1,-2

E) -2,-2

Correct Answer : Option B

96. When an open pipe is suddenly closed at one end, the frequency of the third harmonic of the closed pipe is found to be 50 Hz more than the fundamental frequency of the open pipe. The fundamental frequency of the open pipe is

A) 100 Hz
B) 50 Hz
C) 200 Hz
D) 300 Hz
E) 350 Hz

Correct Answer : Option A

97. In the given wave equation y=0.05 $sin\frac{2\pi}{\lambda}$ (x-200t) m, the velocity of the wave (in ms^{-1}) is

A) $2\sqrt{200}$
B) 400
C) $200\sqrt{2}$
D) $2\sqrt{300}$
E) 200

Correct Answer : Option E

98. Two metallic spheres of radii in the ratio 1 : 2 are charged and joined by a connecting wire. The ratio of electric field intensities at the surfaces of the spheres is

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

Correct Answer : Option A

99. A proton travels through a distance of 5 *m* in the direction of uniform electric field of intensity 4 NC^{-1}. The work done on the proton by the electric field is

A) 10 eV
B) 30 eV
C) 20 eV
D) 16 eV
E) 32 eV

Correct Answer : Option C

100. An electric dipole is placed at an angle of 30^{o} with an electric field intensity $3\times10^{5}NC^{-1}$ experiences a torque 3 *Nm*. If the length of dipole is 2 cm*, the charge on the dipole is*
(in milli coloumb)

A) 2
B) 3
C) 1.5
D) 1
E) 4

Correct Answer : Option D

101. Two air core capacitors of equal capacitance C are connected in series. If one of them is filled with a dielectric substance of dielectric constant *k*, the effective capacitance becomes

A) $(k+1)C$
B) $\frac{kC}{1+k}$
C) $\frac{2kC}{1+k}$
D) $\frac{(k+1)C}{k}$
E) $\frac{k}{(1+k)C}$

Correct Answer : Option B

102. A uniform wire of area of cross section $1 \times 10^{-7} m^2$ carries a current of 1.6 A. If the number density of electrons is $5 \times 10^{28} m^{-3}$, the drift velocity of electrons (in mm s^{-1}) is

A) 1
B) 3
C) 2
D) 4
E) 1.5

Correct Answer : Option C

103. A battery supplies 0.6 *A* current when a 3 Ω resistor is connected with it. When the resistor 3Ω is replaced by 6 Ω, the current is reduced to 0.4 A. Then, the internal resistance of the battery is

A) 3Ω
B) 9Ω
C) 6Ω
D) 12Ω
E) 2Ω

Correct Answer : Option A

104. Kirchhoff's first and second laws are respectively based on the conservation of

A) energy and momentum

B) charge and energy

C) charge and momentum

D) energy and charge

E) momentum and energy

Correct Answer : Option B

105. A particle of charge 10 times that of an electron is revolving in a circular path of radius 0.5 *m*. If the frequency of rotation is 10 rotations per second, the magnetic field at the centre of the circular path is approximately ($\mu_o = 4\pi \times 10^{-7}\ Hm^{-1}$)

A) $4 \times 10^{-29} T$

B) $2 \times 10^{-28} T$

C) $2 \times 10^{-25} T$

D) $8 \times 10^{-27} T$

E) $2 \times 10^{-23} T$

Correct Answer : Option E

106. A wire of length 6 *m* is bent to form a circular loop of single turn. If the current through the loop is 2 *A*, the magnetic moment of the circular loop (in Am^2) is

A) 18π

B) $\frac{18}{\pi}$

C) $\frac{36}{\pi}$

D) 36π

E) $\frac{9}{\pi}$

Correct Answer : Option B

107. The current through a galvanometer of resistance 50 Ω is only 4% of the main current when a shunt resistance is connected. The value of the shunt resistance is approximately

A) 3Ω

B) 4Ω

C) 5Ω

D) 1Ω

E) 2Ω

Correct Answer : Option E

108. The INCORRECT statement is

A) Nickel is ferromagnetic and Aluminium is paramagnetic

B) Cobalt is ferromagnetic and calcium is paramagnetic

C) Nickel is ferromagnetic and cobalt is paramagnetic

D) Both iron and cobalt are ferromagnetic

E) Both copper and lead are diamagnetic

Correct Answer : Option C

109. A current of 2 *A* produces a magnetic flux of 10^{-3} weber per turn in a coil of 1000 turns. Then, the self-inductance of the coil is

A) 0.10 H

B) 0.25 H

C) 0.20 H

D) 0.30 H

E) 0.50 H

Correct Answer : Option E

110. The transformer core is laminated in order to

A) minimize eddy current loss

B) reduce copper loss

C) reduce cost

D) reduce hysteresis loss

E) reduce flux leakage

Correct Answer : Option A

111. The CORRECT statement among the following regarding electromagnetic waves is

A) They can travel through vacuum

B) They consist of only electric field

C) They consist of only magnetic field

D) They require a medium to propagate

E) They move with a velocity of 3×10^{8} cms^{-1}

Correct Answer : Option A

112. A biconvex lens with equal radii of curvature R has a focal length f. If the refractive index of the lens is $\frac{3}{2}$, the focal length of the lens is

A) R

B) $\frac{R}{2}$

C) 2R

D) $\frac{3}{2}$R

E) 3R

Correct Answer : Option A

113. The width of a fringe is 0.5 *mm* in Young's double slit experiment for a light of wavelength 500*nm.* If the wave length of light alone is changed to 600 *nm*, the width of the fringe becomes

A) 0.4 mm

B) 0.3 mm

C) 0.2 mm

D) 0.6 mm

E) 0.55 mm

Correct Answer : Option D

114. The primary purpose of using polaroids in sunglasses is to

A) make the sunglasses look fashionable

B) change the colour of the objects

C) control the intensity of light from the objects

D) magnify the object

E) make the sunglasses cheaper

Correct Answer : Option C

115. An electron and a proton possess same kinetic energy. If the de Broglie wavelengths of the electron and the proton are λ_e and λ_p respectively, identity the CORRECT relation.

A) $\lambda_e > \lambda_p$

B) $\lambda_e = \lambda_p$

C) $\lambda_p = \sqrt{1836}\,\lambda_e$

D) $\lambda_p = 1836\,\lambda_e$

E) $\lambda_p = 183\,\lambda_e$

Correct Answer : Option A

116. The work function of a material is 6.6 eV. Then, the threshold wavelength of the metal is approximately (Take $h = 6.6 \times 10^{-34}$J.s)

A) 108 nm

B) 188 nm

C) 208 nm

D) 228 nm

E) 250 nm

Correct Answer : Option B

117. The ratio of the longest wavelength of the Lyman series to that of Ballmer series of the hydrogen spectrum is

A) 3:29

B) 7:27

C) 5:27

D) 4:29

E) 5:29

Correct Answer : Option C

118. The mass of a proton is 1.0073*u* and that of a neutron is 1.0087*u*. The binding energy of ${}_{2}^{4}He$ is approximately (Given: helium nucleus mass = 4.0015*u*)

A) 24.8 MeV
B) 24.4 MeV
C) 2.48 MeV
D) 2.84 MeV
E) 28.4 MeV

Correct Answer : Option E

119. Which of the following can be used in the output circuit of a diode rectifier to filter ac ripples?

A) A capacitor in series with the load
B) An inductor in parallel with the load
C) A capacitor in parallel with the load
D) Both capacitor and inductor in parallel with the load
E) Both capacitor and inductor in series with the load

Correct Answer : Option C

120. When a PN junction diode is forward biased, the CORRECT statement is

A) the majority carrier current is zero
B) the junction resistance is large
C) the width of depletion layer is reduced
D) the width of depletion layer is increased
E) the minority carrier current is large

Correct Answer : Option C

121. An organic compound contains 40% C and 6.7% H_2. What is the empirical formula of the compound?

A) CH_4
B) CH_2O
C) CH_3
D) CH_4O
E) CH_3O_2

Correct Answer : Option B

122. The kinetic energy of a fast-moving particle of mass 1 x 10^{-31}kg is associated with a de Broglie wavelength 63nm is (h = 6.3 x 10^{-34} Js)

A) 5×10^{-21}J

B) 1×10^{-22}J

C) 5×10^{-22}J

D) 1×10^{-21}J

E) 2×10^{-21}J

Correct Answer : Option C

123. Consider the following metals: Li, Na, K, Cu, Mg and Ag. The metals with the lowest and highest work function are respectively

A) Na and Cu

B) K and Cu

C) Li and Ag

D) Mg and Cu

E) K and Ag

Correct Answer : Option B

124. The IUPAC nomenclature of the element with atomic number 105 is unnilpentium. What is its official IUPAC name?

A) Lawrencium

B) Nobelium

C) Seaborgium

D) Meitnerium

E) Dubnium

Correct Answer : Option E

125. The correct increasing order of metallic character of the elements Si, Be, Mg, Na and P is

A) P < Si < Be < Mg < Na

B) Si < P < Be < Mg < Na

C) Be < P < Si < Na < Mg

D) Na < Mg < Be < Si < P

E) Mg < Si < Na < P < Be

Correct Answer : Option A

126. Which of the following statement is correct?

A) CO2 molecule contains one C-O and one C=O bonds and one lone pair on each oxygen atom.

B) CO_2 molecule contains two C-O bonds and one lone pair on each oxygen atom

C) CO_2 molecule contains one C-O bond and one C=O bond with two lone pairs on each oxygen atom.

D) CO_2 molecule contains one C-O bond and one C≡O and one lone pair on each oxygen atom.

E) CO_2 molecule contains two C=O bonds and two lone pairs on each oxygen atom.

Correct Answer : Option E

127. The molecule with square planar structure containing two lone pairs at the central atom is

A) Platinum(IV) fluoride

B) Carbon(IV) fluoride

C) Silicon(IV) fluoride

D) Xenon (IV) fluoride

E) Nickel (IV) fluoride

Correct Answer : Option D

128. The enthalpy of vapourisation of diethyl ether is 26.0 kJ mol^{-1} and its normal boiling point is 35^0C. What is the value of ΔS^0 for the conversion of liquid diethyl ether to vapour at 35^0C?

A) -84.4 $JK^{-1}mol^{-1}$

B) +742.9$JK^{-1}mol^{-1}$

C) -8.44 $JK^{-1}mol^{-1}$

D) +84.4 $JK^{-1}mol^{-1}$

E) -742.9$JK^{-1}mol^{-1}$

Correct Answer : Option D

129. The standard enthalpies of formation of $C_6H_6(l)$, $CO_2(g)$ and $H_2O(l)$ are respectively +49kJ mol^{-1}, -394kJ mol^{-1} and -286kJ mol^{-1} respectively. What is the value of standard enthalpy of combustion of $C_6H_6(l)$?

A) -3222 kJ mol^{-1}

B) -3173 kJ mol^{-1}

C) -3271 kJ mol^{-1}

D) +3173 kJ mol^{-1}

E) -3122 kJ mol^{-1}

Correct Answer : Option C

130. The equilibrium constant K_P of a homogenous equilibrium reaction is 1 x 10^{-6} at 227° C. What is the value of ΔG^0 of the reaction at the same temperature? (R = 8.3$JK^{-1}mol^{-1}$)

A) 26.3 kJ mol-1

B) +57.3 kJ mol-1

C) -57.3 kJ mol-1

D) -26.3 kJ mol-1

E) -573 kJ mol-1

Correct Answer : Option B

131. For the gas phase homogenous equilibrium $N_{2(g)} + O_{2(g)} \leftrightharpoons 2NO_{(g)}$, K_C= 0.1 at 1500K.If the initial concentrations of $N_{2(g)}$ and $O_{2(g)}$ are each 0.04 mol L^{-1}what is the equilibrium concentration of $NO_{(g)}$?

A) 0.100 mol L^{-1}

B) 0.0100mol L^{-1}

C) 0.022 mol L^{-1}

D) 0.02 mol L^{-1}

E) 0.011 mol L^{-1}

Correct Answer : Option E

132. In which one of the following reactions, +2 state in a reactant is reduced to +1 state?

A) $Mg + S \rightarrow MgS$

B) $2HgCl_2 + SnCl_2 \rightarrow Hg_2Cl_2 + SnCl_4$

C) $CH_4 + 2O_2 \rightarrow CO_2 + 2H_2O$

D) $2K_4[Fe(CN)_6] + H_2O_2 \rightarrow 2K_3[Fe(CN)_6] + 2KOH$

E) $2H_2S + O_2 \rightarrow S + 2H_2O$

Correct Answer : Option B

133. In the following redox reaction $P_{4(s)} + 3OH^-_{(aq)} + 3H_2O_{(l)} \rightarrow PH_{3(g)} + 3H_2PO_2^-{}_{(aq)}$, the oxidation state of phosphorus changes from

A) 0 to -3 and 0 to -1

B) 0 to +1 and 0 to +3

C) 0 to -1 and 0 to +5

D) 0 to -3 and 0 to +1

E) -3 to 0 and +1 to +3

Correct Answer : Option D

134. If ‘c’ is the molarity of a solution, ‘m’ the molality, M_2 the molecular weight of the solute in a binary solution and ‘ρ’, is the density of the solution in g/cm^3, then the relationship between molality ‘m’ and molarity ‘c’ is given by

A) $m = c/[\rho - cM_2/1000]$ mol kg^{-1}

B) $m = 1000c/[\rho - cM_2]$ mol kg^{-1}

C) $m = c\rho/[1 + cM_2/100]$ mol kg^{-1}

D) $m = 1000c/\rho$mol kg^{-1}

E) $m = 1000c/[1000\rho + cM_2]$

Correct Answer : Option A

135. In a first order reaction at a given temperature the time required to complete 99% of the reaction (T_1) is related to time required for 90% completion(T_2) as

A) $T_1 = T_2$

B) $T_1 = 4T_2$

C) $T_1 = 3T_2$

D) $T_1 = 2T_2$

E) $T_1 = 5T_2$

Correct Answer : Option D

136. The overall order of the following reaction is
$KClO_3 + 6FeSO_4 + 3H_2SO_4 \rightarrow KCl + 3Fe_2(SO_4)_3 + 3H_2O$

A) ten

B) six

C) two

D) three

E) one

Correct Answer : Option C

137. Which of the following element of first transition series has the lowest atomization enthalpy?

A) Ti

B) V

C) Cr

D) Mn

E) Fe

Correct Answer : Option D

138. Which of the following complex has the lowest molar conductivity?

A) Dichlorotetrammineplatinum(IV) chloride

B) Dichlorotetramminecobalt(III) chloride

C) Potassium hexacyanidoferrate(II)

D) Hexaaquochromium(III) chloride

E) Pentacarbonyliron(0)

Correct Answer : Option E

139. The complexes $[Co(NH_3)_6]$ $[Cr(CN)_6]$ and $[Cr(NH_3)_6]$ $[Co(CN)_6]$ are examples of

A) linkage isomerism

B) ionisation isomerism

C) solvate isomerism

D) coordination isomerism
E) geometrical isomerism

Correct Answer : Option D

140. The number of C-C, C-H and C=C bonds in but-2-en-1-yne are, respectively
A) 3, 8, 2
B) 4, 6, 3
C) 3, 6, 2
D) 2, 6, 3
E) 3, 5, 2

Correct Answer:-Question Cancelled

141. The alkane that cannot be prepared in pure state by Kolbe's electrolysis is
A) ethane
B) 2,3-dimethyl butane
C) propane
D) n-butane
E) n-hexane

Correct Answer : Option C

142. 1-Chlorocyclohexene is an example of
A) alkyl halide
B) aryl halide
C) benzylic halide
D) vinylic halide
E) allylic halide

Correct Answer : Option D

143. Which of the following is an ambident nucleophile?
A) OH^-
B) NH_2^-
C) I^-
D) CH_3O^-
E) CN^-

Correct Answer : Option E

144. Identify the allylic alcohol in the following.
A) $C_6H_5CH_2OH$
B) C_6H_5-CH=CH-$C(CH_3)_2$-OH
C) CH_2=CH-OH
D) C_6H_5-CH_2-CH_2-OH

E) CH_2=CH-CH_2-CH_2-OH

Correct Answer : Option B

145. *p*-Bromophenol is the major product formed when phenol is treated with

A) Bromine water

B) Br_2 in acetic acid at 300K

C) Br_2 in CCl_4 at 300K

D) Br_2 in CS_2 at 273K

E) Br_2 in acetone at 273K

Correct Answer : Option D

146. The IUPAC name of mesityl oxide is

A) 2-Methylpent-2-en-3-one

B) 3-Methylpent-2-en-4-one

C) 4-Methylpent-2-en-3-one

D) 4-Methylpent-3-en-2-one

E) 2-Methylpent-3-en-4-one

Correct Answer : Option D

147. Which of the following carboxylic acid has the highest pKa value?

A) O_2N-CH_2-COOH

B) F-CH_2-COOH

C) HCOOH

D) CN-CH_2COOH

E) C*l*-CH_2COOH

Correct Answer : Option C

148. Choose the correct decreasing order of basic strength of amines in aqueous solution:

A) $NH_3 > CH_3NH_2 > (CH_3)_2NH > (CH_3)_3N$

B) $(CH_3)_2NH > (CH_3)_3N > NH_3 > CH_3NH_2$

C) $(CH_3)_3N > NH_3 > CH_3NH_2 > (CH_3)_2NH$

D) $(CH_3)_2NH > CH_3NH_2 > (CH_3)_3N > NH_3$

E) $CH_3NH_2 > (CH_3)_2NH > (CH_3)_3N > NH_3$

Correct Answer : Option D

149. Hinsberg's reagent is

A) $HCl/ZnCl_2$

B) Sn/HCl

C) ammoniacal $AgNO_3$

D) $FeBr_3$

E) benzenesulphonyl chloride

Correct Answer : Option E

150. Lactose, the milk sugar is composed of

A) two β-D-glucose units

B) one β-D-glucose and one α-D-glucose units

C) two α-D-glucose units

D) one α-D-galactose and one β-D-glucose units

E) one β-D-galactose and one β-D-glucose units

Correct Answer : Option E