Roll No.----------

Paper Code		
3	7	0

(To be filled in the OMR Sheet)

प्रश्नपुस्तिका क्रमांक
Question Booklet No.

O.M.R. Serial No. | | | | | | | | |

प्रश्नपुस्तिका सीरीज
Question Booklet Series

A

BCA (Second Semester) Examination, July-2022

BCA-205(N)

Mathematics-II

(B.P.)

Time : 1:30 Hours **Maximum Marks-100**

जब तक कहा न जाय, इस प्रश्नपुस्तिका को न खोलें

निर्देश : –

1. परीक्षार्थी अपने अनुक्रमांक, विषय एवं प्रश्नपुस्तिका की सीरीज का विवरण यथास्थान सही– सही भरें, अन्यथा मूल्यांकन में किसी भी प्रकार की विसंगति की दशा में उसकी जिम्मेदारी स्वयं परीक्षार्थी की होगी।
2. **इस प्रश्नपुस्तिका में 100 प्रश्न हैं, जिनमे से केवल 75 प्रश्नों के उत्तर परीक्षार्थियों द्वारा दिये जाने है। प्रत्येक प्रश्न के चार वैकल्पिक उत्तर प्रश्न के नीचे दिये गये हैं। इन चारों में से केवल एक ही उत्तर सही है। जिस उत्तर को आप सही या सबसे उचित समझते हैं, अपने उत्तर पत्रक (O.M.R. ANSWER SHEET) में उसके अक्षर वाले वृत्त को काले या नीले बाल प्वांइट पेन से पूरा भर दें। यदि किसी परीक्षार्थी द्वारा किसी प्रश्न का एक से अधिक उत्तर दिया जाता है, तो उसे गलत उत्तर माना जायेगा।**
3. प्रत्येक प्रश्न के अंक समान हैं। आप के जितने उत्तर सही होंगे, उन्हीं के अनुसार अंक प्रदान किये जायेंगे।
4. सभी उत्तर केवल ओ०एम०आर० उत्तर पत्रक **(O.M.R. ANSWER SHEET)** पर ही दिये जाने हैं। उत्तर पत्रक में निर्धारित स्थान के अलावा अन्यत्र कहीं पर दिया गया उत्तर मान्य नहीं होगा।
5. ओ०एम०आर० उत्तर पत्रक **(O.M.R. ANSWER SHEET)** पर कुछ भी लिखने से पूर्व उसमें दिये गये सभी अनुदेशों को सावधानीपूर्वक पढ़ लिया जाय।
6. परीक्षा समाप्ति के उपरान्त परीक्षार्थी कक्ष निरीक्षक को अपनी ओ०एम०आर० शीट उपलब्ध कराने के बाद ही परीक्षा कक्ष से प्रस्थान करें।
7. निगेटिव मार्किंग नहीं है।

महत्वपूर्ण : – **प्रश्नपुस्तिका खोलने पर प्रथमतः जॉच कर देख लें कि प्रश्नपुस्तिका के सभी पृष्ठ भलीभॉति छपे हुए हैं। यदि प्रश्नपुस्तिका में कोई कमी हो, तो कक्ष निरीक्षक को दिखाकर उसी सीरीज की दूसरी प्रश्नपुस्तिका प्राप्त कर लें।**

1. If $f(x, y) = x^2 + y^2$, then $\frac{\partial f}{\partial x}$ is :

(A) $2x + y^2$

(B) $2x$

(C) $2x + 2y$

(D) NOT

2. If $u = \frac{x^4+y^4}{x+y}$, then $x\frac{\partial u}{\partial x} + y\frac{\partial u}{\partial y}$ is :

(A) $4u$

(B) 4

(C) $3u$

(D) NOT

3. Equation of sphere with center at (-3, 2, 4) and radius 6 units is :

(A) $x^2 + y^2 + z^2 + 6x + 4y + 8z = 7$

(B) $x^2 + y^2 + z^2 + 6x - 4y - 8z = 7$

(C) $x^2 + y^2 + z^2 - 6x + 4y - 8z = 7$

(D) None

4. Acute angle between the lines $x - 2 = 0$ and $\sqrt{3}\,x - y - 2 = 0$ is :

(A) $0°$

(B) $30°$

(C) $45°$

(D) $60°$

5. Direction ratios of normal to the plane $2x - y + 2z + 1 = 0$ are :

(A) $(2, 1, 2)$

(B) $(2, -1, 2)$

(C) $(2, 1, -2)$

(D) NOT

6. A line makes an angle α, β, γ, with x, y, z, axis respectively then $\sin^2\alpha + \sin^2\beta + \sin^2\gamma$ is :

(A) 1

(B) 0

(C) 2

(D) NOT

7. $\int_0^1 \int_0^1 \int_0^1 dx\, dy\, dz$ is :

(A) 1

(B) 2

(C) 0

(D) 4

8. Curve $y^2 = 4x$ is a :

(A) Parabola

(B) Hyperbola

(C) Straight line

(D) Ellipse

9. $\int_0^\pi \int_0^\pi d\theta\, d\phi$ is :

(A) 1

(B) 0

(C) $\frac{\pi}{2}$

(D) π^2

10. If $f(x, y) = \sqrt{x} + \sqrt{y}$ then degree of Homogeneous function $f(x, y)$ is :

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

(B) 2

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

(D) NOT

11. Which of the following is true ?

(A) $\frac{\partial^2 u}{\partial x^2} = \frac{\partial^2 u}{\partial y^2}$

(B) $\frac{\partial^2 u}{\partial x\, \partial y} = \frac{\partial^2 u}{\partial y\, \partial x}$

(C) $\frac{\partial u}{\partial x} = \frac{\partial v}{\partial y}$

(D) NOT

12. If the lines $3x + 2ky - 2 = 0$ and $2x + 5y + 1 = 0$ are parallel then the value of k is :

(A) $\frac{-5}{4}$

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

(C) $\frac{15}{4}$

(D) $\frac{2}{5}$

13. If $u = \log\left[\frac{x^2+y^2}{x+y}\right]$, them $x\frac{\partial u}{\partial x} + y\frac{\partial u}{\partial y}$ is :

(A) 0

(B) 1

(C) u

(D) eu

14. Changing the order of integration in $\int_o^a \int_o^y f(x,y)\, dx\, dy$, the new integral is :

(A) $\int_o^a \int_x^a f(x,y)\, dy\, dx$

(B) $\int_x^a \int_o^a f(x,y)\, dy\, dx$

(C) $\int_o^a \int_x^y f(x,y)\, dy\, dx$

(D) $\int_o^a \int_{a-x}^a f(x,y)\, dy\, dx$

15. $\int_0^1 \int_0^x dx\, dy$ is :

(A) 1

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

(C) 2

(D) 3

16. To find the volume, which of the following integral can be used :

(A) Single

(B) Double

(C) Triple

(D) Double and triple

17. Volume of a cube with side a is :

(A) $\int_0^a \int_0^a \int_0^a dx\, dy\, dz$

(B) a^2

(C) $\int_0^a \int_0^a dx\, dy$

(D) $\frac{a^3}{8}$

18. Sum of direction cosines of z axis is :

(A) 0

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

(C) 1

(D) 3

19. If a line has direction ratio's $(1, 2, 3)$ then its direction cosines are :

(A) $\left(\frac{1}{\sqrt{14}}, \frac{-2}{\sqrt{14}}, \frac{3}{\sqrt{14}}\right)$

(B) $\left(\frac{1}{\sqrt{14}}, \frac{2}{\sqrt{14}}, \frac{3}{\sqrt{14}}\right)$

(C) $\left(\frac{-1}{\sqrt{14}}, \frac{2}{\sqrt{14}}, \frac{3}{\sqrt{14}}\right)$

(D) $\left(\frac{1}{\sqrt{14}}, \frac{2}{\sqrt{14}}, \frac{-3}{\sqrt{14}}\right)$

20. If $f(x, y, z) = x^2 + xyz + z$ then $f_x(1, 1, 1)$ is :

(A) 0

(B) 3

(C) 1

(D) -1

21. If $y = \log sin\, x + z$ then $\frac{\partial y}{\partial x}$ is :

(A) $\cot x$

(B) $\frac{1}{Sin\, x}$

(C) $cos\, x$

(D) z

22. If $z = \tan^{-1}\left(\frac{y}{x}\right)$, then the value of $\frac{\partial^2 z}{\partial x^2} + \frac{\partial^2 z}{\partial y^2}$ is equal to :

(A) $\frac{-y}{x^2+y^2}$

(B) $\frac{x}{x^2+y^2}$

(C) $\frac{2xy}{x^2+y^2}$

(D) 0

23. If u is homogeneous function of x, y with degree n then :

(A) $x\frac{\partial u}{\partial x} + y\frac{\partial u}{\partial y} = nu$

(B) $x\frac{\partial u}{\partial x} + y\frac{\partial u}{\partial y} = u$

(C) $x\frac{\partial u}{\partial x} - y\frac{\partial u}{\partial y} = nu$

(D) NOT

24. Number of elements in power set of set $A = \{1, 2, 3\}$ is :

(A) 3

(B) 8

(C) 9

(D) 6

25. If $A = \phi$ then power set of A is :

(A) $\{\phi\}$

(B) $\{\phi, A\}$

(C) ϕ

(D) NOT

26. $(AUB)'$ is equal to :

(A) $A' \cup B'$

(B) $A' \cup \overline{B}$

(C) $A' \cap B'$

(D) $(A \cap B)'$

27. Set of circles passing through origin is a :

(A) Finite set

(B) Infinite set

(C) Both finite and infinite set

(D) NOT

28. If $u = e^{xyz}$ then $\frac{\partial f}{\partial x}$ is :

(A) yzu

(B) yze^{yz}

(C) xyz

(D) xyu

29. If $f(x, y) = \frac{x^3+y^3}{\sqrt{x}+\sqrt{y}}$ is homogeneous function of degree n then n is :

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

(B) 3

(C) $\frac{5}{2}$

(D) $\frac{1}{2}$

30. $A = \{1, 2, 3\}, B = \{4, 5, 6\}$ then A – B is :

(A) $\{1, 2, 3\}$

(B) $\{4, 5, 6\}$

(C) ϕ

(D) B

31. If $n(A) = 20,\ n(B) = 30,\ n(A \cup B) = 100$ then $n(A \cap B)$ is :

(A) 50

(B) 40

(C) 20

(D) 30

32. $n(A \cup B)$ is equal to :

(A) $n(A) + n(B) - n(A \cap B)$

(B) $n(A) + n(B)$

(C) $n(A) - n(B)$

(D) $n(A) \cup n(B)$

33. If $f(x, y) = x^3 - 3xy^2,\ g(x, y) = 3x^2y - y^3$ then :

(A) $\frac{\partial f}{\partial x} = \frac{\partial g}{\partial x}$

(B) $\frac{\partial f}{\partial x} = \frac{-\partial g}{\partial y}$

(C) $\frac{\partial f}{\partial y} = \frac{\partial g}{\partial x}$

(D) $\frac{\partial f}{\partial y} = \frac{-\partial g}{\partial x}$

34. If $A = \{a, b\}, B = \{b, a\}$ then :

(A) $A \neq B$

(B) $A = B$

(C) $A \cap B = \phi$

(D) NOT

35. Set $A = \{x;\ 3x - 2 = 3,\ x \epsilon \mathbb{Z}\}$ is :

(A) $\left\{\frac{5}{2}\right\}$

(B) $\frac{5}{3}$

(C) ϕ

(D) $\{\phi\}$

36. Relation '<' on z^+ is :

(A) Partial order relation

(B) Not a partial order relation

(C) Reflexive

(D) NOT

37. If P(S) is power set of S, then $(P(S), \subseteq)$ is :

(A) Never a lattice

(B) Always a lattice

(C) $|P(S)| = |S|$

(D) $|P(S)| = 2$

38. If $A = \{x; x^2 \leq 16,\ x \in z\}$ then A is :

(A) $\{0, 1, 2, 3, 4\}$

(B) $\{-4, -3, -2, -1, 0, 1, 2, 3, 4\}$

(C) $\{x;\ -4 \leq x \leq 4\}$

(D) NOT

39. Set of integers z with relation '>' is a :

(A) POSET

(B) Not POSET but Reflexive

(C) Reflexive

(D) Not a POSET

40. A×B is defined as :

(A) $\{(a, b)\ ;\ a, b \in A\}$

(B) $\{(a, b)\ ;\ a, b \in B\}$

(C) $\{(a, b)\ ;\ a \in A,\ b \in B\}$

(D) $\{(a, b)\ ;\ a \in B,\ b \in A\}$

41. If the lines $\frac{x-x_1}{a} = \frac{y-y_1}{b} = \frac{z-z_1}{c}$ and $\frac{x-x_2}{p} = \frac{y-y_2}{q} = \frac{z-z_2}{r}$ lei on a plane then :

(A) $\begin{vmatrix} x_1 & y_1 & z_1 \\ a & b & c \\ p & q & r \end{vmatrix} = 0$

(B) $\begin{vmatrix} x_1 - x_2 & y_1 - y_2 & z_1 - z_2 \\ a & b & c \\ p & q & r \end{vmatrix} = 0$

(C) $\begin{vmatrix} x_1 - x_2 & y_1 - y_2 & z_1 - z_2 \\ a & b & c \\ p & q & r \end{vmatrix} \neq 0$

(D) NOT

42. Equation of sphere in standard form is :

(A) $x^2 + y^2 + z^2 = r^2$

(B) $x^2 + y^2 + 2gx + 2fy + c = 0$

(C) $xyz = r^2$

(D) $(x-h)^2 + (y-k)^2 = r^2$

43. If $u(x, y) = xy + yz + zx$, then $\frac{\partial f}{\partial x} + \frac{\partial f}{\partial y} + \frac{\partial f}{\partial z}$ is :

(A) $y + x$

(B) $y + z$

(C) $2(x + y + z)$

(D) $x + y + z$

44. If l, m, n represents the direction cosines then $l^2 + m^2 + n^2$ is :

(A) 0

(B) 3

(C) -1

(D) 1

45. Distance of plane $3x + 4y - 5z - 7 = 0$ from origin is :

(A) $\frac{7}{\sqrt{40}}$

(B) $\frac{6}{\sqrt{34}}$

(C) $\frac{8}{\sqrt{50}}$

(D) $\frac{7}{\sqrt{50}}$

46. $\int_a^b \int_c^d dx\ dy$ is :

(A) $-\int_c^d \int_a^b dy\ dx$

(B) $\int_c^d \int_a^b dy\ dx$

(C) $abcd$

(D) $bc - ad$

47. Double integral $\int_{x_1}^{x_2} \int_{y_1}^{y_2} dy\ dx$ represents :

(A) Volume

(B) Area and volume

(C) Area

(D) NOT

48. Using volume integral, which of the following quantity can be calculated :

(A) Area of circle

(B) Area of square

(C) Volume of cube

(D) NOT

49. Changing the order of integration the integral $\int_{y=2}^{3} \int_{x=0}^{2} f(x,y) dx\ dy$ is equal to :

(A) $\int_{x=0}^{2} \int_{y=2}^{3} f(x,y)\ dy\ dx$

(B) $\int_{x=0}^{3} \int_{y=2}^{2} f(x,y)\ dy\ dx$

(C) (A) and (B) both

(D) NOT

50. Triple integral is used to calculate :

(A) Area

(B) Volume

(C) (A) only

(D) NOT

51. If the plane passes through three collinear points (x_1, y_1, z_1),(x_2, y_2, z_2), (x_3, y_3, z_3) then which of the following true ?

(A) $x_1y_1z_1 + x_2y_2z_2 + x_3y_3z_3 = 0$

(B) $\begin{vmatrix} x_1 & y_1 & z_1 \\ x_2 & y_2 & z_2 \\ x_3 & y_3 & z_3 \end{vmatrix} = 0$

(C) $x_1 + y_1 + z_1 = 0$

(D) NOT

52. Mid points of the line segment joining the points $(2, 3, 4)$ and $(8, -3, 8)$ are :

(A) $(10, 0, 12)$

(B) $(5, 6, 0)$

(C) $(6, 5, 0)$

(D) $(5, 0, 6)$

53. Which of the following represent the equation of plane?

(A) $ax^2 + by = d$

(B) $ax + by + cz = xy$

(C) $ax + by + cz = d$

(D) NOT

54. If $Ai = \{0, i\}, i \in z$ then $A_1 \cup A_2$ is equal to :

(A) A_1

(B) A_2

(C) $A_1 \cap A_2$

(D) A_3

55. If $A = \{1\},\ B = \{2\}$ then $A \times B$ is :

(A) $\{(1, 2)\}$

(B) $\{1, 2\}$

(C) $\{1\}$

(D) $\{2\}$

56. If $n(A) = 40,\ n(B) = 40,\ n(A \cap B) = 20,\ n(A \cup B) = 60$ then $n(B \backslash A)$ is :

(A) 60

(B) 40

(C) 30

(D) 20

57. If $A = \{x: x \text{ is a factor of } 10\}\ B = \{2, 5\}$ then :

(A) $A \subset B$

(B) $A = B$

(C) $B \subset A$

(D) $A \cap B = \phi$

58. If $A = \{a, b\}$ then power set P(A) is :

(A) $\{\phi, \{a\}, \{b\}, \{a, b\}\}$

(B) $\{\{a\}, \{b\}\}$

(C) $\{\{a\}, \{b\}, \{a, b\}\}$

(D) $\{\phi, a, b, A\}$

59. Center of sphere $x^2 + y^2 + z^2 + 2x - 4y - 6z + 5 = 0$ is :

(A) $(1, 2, 3)$

(B) $(-1, -2, 3)$

(C) $(-1, 2, 3)$

(D) $(1, 2, -3)$

60. Radius of the sphere $x^2 + y^2 + z^2 + 2ux + 2vy + 2wz + d = 0$ is :

(A) $\sqrt{u^2 + v^2 + w^2}$

(B) $\sqrt{u^2 + v^2 + w^2 - d}$

(C) $\sqrt{u^2 + v^2 + w^2 + d}$

(D) NOT

61. Let $f: R \to R$ be defined by $f(x) = 3x - 4$, then $f^{-1}(x)$ is :

(A) $\frac{x+4}{3}$

(B) $\frac{x}{3} - 4$

(C) $3x + 4$

(D) $x + 3$

62. The relation '<' in the set of natural numbers is :

(A) Only symmetric

(B) Only transitive

(C) Only reflexive

(D) Equivalence relation

63. Domain of $sin^{-1}(4x)$ is :

(A) $[0, 1]$

(B) $\left[\frac{-1}{4}, \frac{1}{4}\right]$

(C) $[-3, 3]$

(D) NOT

64. A function $f: R \to R \; s.t. f(x) = x^2$ is :

(A) One one, onto

(B) One one, into

(C) Many one into

(D) Does not exist

65. Domain of the function $f(x) = \sqrt{4 - x^2}$ is all real x $s.t.$:

(A) $x < 2$

(B) -2

(C) $-2 \leq x \leq 2$

(D) $x > -2$

66. If $u = ax^2 + 2hxy + by^2$ then using Euler's theorem, $x\frac{\partial u}{\partial x} + y\frac{\partial u}{\partial y}$ is :

(A) u

(B) $2u$

(C) $3u$

(D) $n(n-1)$

67. If $f(x, y) = \frac{x+y}{y}$ then $x\frac{\partial f}{\partial x} + y\frac{\partial f}{\partial y}$ is :

(A) 0

(B) 1

(C) 2

(D) 3

68. Maximum value of xe^{-x} is :

(A) e

(B) $\frac{1}{e}$

(C) $-e$

(D) $-\frac{1}{e}$

69. $a \wedge (b \wedge c) = (a \wedge b) \wedge c$ is :

(A) Distributive law

(B) Associative law

(C) commutative law

(D) NOT

70. A POSET in which every pair of element has both a least upper bound and greatest lower bound is :

(A) Sublattice

(B) Lattice

(C) Not a lattice

(D) NOT

71. Which laws are satisfied for a lattice?

(A) Associative law

(B) Commutative law

(C) Absorption law

(D) All above

72. Which of the following is a partial order as well as equivalence relation?

(A) Equal to (=)

(B) Less than (<)

(C) Greater than (>)

(D) NOT

73. If $f(x) = x^2$ and $g(x) = \sin x$ then the value of $gof(x)$ is :

(A) $cos\ x$

(B) $sin\ x^2$

(C) $-sin\ x^2$

(D) $sin\ x$

74. Let $A = \{-2, -1, 0\}$ and $f(x) = 2x - 3$ then the range of f is :

(A) $\{7, -5, -3\}$

(B) $(-7, 5, -3)$

(C) $\{-7, -5, -3\}$

(D) NOT

75. Let $f: z \to z$ (z is set of integers) be defined by $f(x) = x^2 + x - 2$ then $f\big(f(-2)\big)$ is :

(A) -2

(B) -1

(C) 1

(D) 3

76. If $R \subset A \times B$ and $S \subset B \times C$ be two relations, then $(SoR)^{-1}$ equals to :

(A) S^{-1}o R^{-1}

(B) R^{-1}o S^{-1}

(C) SoR

(D) RoS

77. Relation $R = \{(1,1),(2,2),(3,3),(1,2),(2,3)(1,3)\}$ on the set $A = \{1,2,3\}$ is :

(A) Reflexive but not symmetric

(B) Reflexive but not transitive

(C) Symmetric and transitive

(D) NOT

78. The number of elements in the power set of a set having $n-2$ elements is :

(A) $2^n - 2$

(B) 2^n

(C) 2^{n-2}

(D) 2^{n-1}

79. Range of function $f: R \to R\ st. f(1) = 2, f(2) = 3, f(3) = 4$ is :

(A) $\{1,2,3\}$

(B) R

(C) {2, 3, 4}

(D) {(1, 2), (2, 3), (3, 4)}

80. If $f(x) = \frac{x+2}{x-3}$, $x \neq 3$ then $\mathrm{f}^{-1}(x)$ is equal to :

(A) $\frac{x-1}{3x+2}$

(B) $\frac{3x+2}{x-1}$

(C) $\frac{x-3}{x+2}$

(D) $\frac{x-2}{x+3}$

81. A relation $f(x) = y\ \ s.t.$:

(A) $y^2 = 4ax$ is a function

(B) $y^2 = -4ax$ is a function

(C) $y = x$ is a function

(D) NOT

82. Let R be a reflexive relation on a set A and I be the identity relation on A, then :

(A) $R \subset I$

(B) $I \subset R$

(C) $R = I$

(D) NOT

83. Let R and T be two equivalence relations on a set A then :

(A) $R \cup S$ is an equivalence relation

(B) $R \cap S$ is an equivalence relation

(C) $R - S$ is an equivalence relation

(D) NOT

84. If R is an equivalence relation on set B then R^{-1} is :

(A) Reflexive only

(B) Symmetric only

(C) Equivalence

(D) NOT

85. $A = \{1, 2, 3, 4\},\ B = \{2, 3, 4, 5\},\ C = \{4, 5, 6, 7\}$ then $(A \cap B) \cap C$ then :

(A) $\{4\}$

(B) $\{2, 3, 4\}$

(C) $\{3, 4\}$

(D) ϕ

86. If the function $f: Q \to Q$ is defined by the relation $f(x) = x - \frac{1}{2}$, $x \in Q$ then f is :

(A) Many one onto mapping

(B) One-one into mapping

(C) One-one onto mapping

(D) Many one onto mapping

87. If $f(x) = \frac{2x+5}{x^2+x+5}$, then $f\big(f(-1)\big)$ is equal to :

(A) $\frac{155}{149}$

(B) $\frac{149}{155}$

(C) 0

(D) NOT

88. Let $X = \{2, 3, 6, 12, 24\}$ and '$\leq$' be the partial order relation $x \leq y$ if x divides y. Number of edges in the Hasse diagram of $(X, \leq)$ is :

(A) 3

(B) 4

(C) 9

(D) NOT

89. If $u = \log(x + y + 1)$, then $\frac{\partial u}{\partial x}$ at $(1, 2)$:

(A) $\frac{1}{3}$

(B) 4

(C) $\frac{1}{2}$

(D) $\frac{1}{4}$

90. Function $f(x, y)$ has maximum value at (a, b) if :

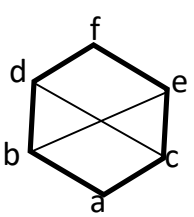
(A) $rt - s^2 > 0$ and r < 0

(B) $rt - s^2 > 0$ and r > 0

(C) $rt - s^2 < 0$ and r < 0

(D) $rt - s^2 < 0$ and r > 0

91. The graph given below is an example of :



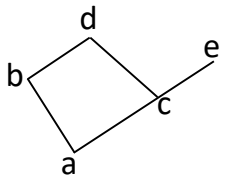
(A) Non lattice

(B) Lattice

(C) Semi lattice

(D) NOT

92. Which element is minimal in the following diagram :



(A) d

(B) b

(C) c

(D) a

93. Let $D_{30} = \{1, 2, 3, 5, 6, 10, 15, 30\}$ and relation 'a divides b' be a partial ordering on D_{30}. The lub of 10 and 15 respectively is :

(A) 30

(B) 15

(C) 10

(D) 16

94. The value of $\int_0^2 \int_1^y xy \, dx \, dy$ is :

(A) 0

(B) -1

(C) 2

(D) 1

95. Saddle point is a point where function has :

(A) Maximum value

(B) Minimum value

(C) Zero value

(D) Neither maximum nor minimum value

96. Stationary point is a point where $f(x, y)$ have ?

(A) $\frac{\partial f}{\partial x} = 0$

(B) $\frac{\partial f}{\partial y} = 0$

(C) $\frac{\partial f}{\partial x} = 0$ and $\frac{\partial f}{\partial y} = 0$

(D) $\frac{\partial f}{\partial x} < 0$ and $\frac{\partial f}{\partial y} > 0$

97. Range of $f(x) = cos\ x$ is :

(A) $(-1, 1)$

(B) $[-2, 2]$

(C) $[-\pi, \pi]$

(D) $[-1, 1]$

98. Function $f: N \to N$ such that $f(x) = x + 1$ is :

(A) One-one only

(B) Onto only

(C) One-one onto

(D) NOT

99. Equation of a plane passing through $(1, 2, 1), (2, -1, -4), (1, 0, -1)$ is :

(A) $2x - y + z = 1$

(B) $x + y + z = 1$

(C) $2x + y + z = 1$

(D) NOT

100. Range of function $f(x) = \tan x$ is :

(A) $(-1, 1)$

(B) $\left(\frac{-\pi}{2}, \frac{\pi}{2}\right)$

(C) $[-\pi, \pi]$

(D) $(-\infty, \infty)$

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Rough Work / रफ कार्य

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