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Paper Code

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(To be filled in the
OMR Sheet)

प्रश्नपुस्तिका क्रमांक
Question Booklet No.
721364

O.M.R. Serial No.

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प्रश्नपुस्तिका सीरीज
Question Booklet Series
D

BCA (Second Semester) Examination, July-2022

BCA-2005

Mathematics-II

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 भरे, अन्यथा मूल्यांकन में किसी भी प्रकार की विसंगति की दशा में उसकी जिम्मेदारी स्वयं परीक्षार्थी की होगी।
 2. इस प्रश्नपुस्तिका में 100 प्रश्न हैं, जिनमें से केवल 75 प्रश्नों के उत्तर परीक्षार्थियों द्वारा दिये जाने हैं। 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 प्वाइंट 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 जाँच कर देख लें कि प्रश्नपुस्तिका के सभी पृष्ठ श्लिथीति छपे हुए हैं। यदि प्रश्नपुस्तिका में कोई कमी हो, तो कक्ष निरीक्षक को दिखाकर उसी सीरीज की दूसरी प्रश्नपुस्तिका प्राप्त कर लें।

SEAL

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1. What are the two binary operation defined for lattice ?
 - (A) Join, meet
 - (B) Union, Intersection
 - (C) Addition, subtraction
 - (D) None of these
2. A Poset in which every pair of element has both a least upper bound and a greatest lower bound is :
 - (A) Sub lattice
 - (B) Lattice
 - (C) Walk
 - (D) None of these
3. What's the another name for a partially ordered set ?
 - (A) P set
 - (B) Set
 - (C) Partial set
 - (D) PO set
4. Which of the following relation is a partial order as well as an equivalence relation?
 - (A) Equal to (=)
 - (B) Less than (<)
 - (C) Greater than (>)
 - (D) None of these
5. The relation $\leq$ is a partial order, if it is :
 - (A) Reflexive antisymmetric and transitive
 - (B) Asymmetric, transitive
 - (C) Reflexive, symmetric
 - (D) Areflexive, transitive

6. Let $R = \{(a, a)\}$ be a relation on a set A . Then R is :
- (A) Symmetric
 - (B) Anti-Symmetric
 - (C) Symmetric and Anti-Symmetric
 - (D) Neither Symmetric nor Anti Symmetric
7. Let $f: R \rightarrow R$ be defined by $f(x) = \frac{1}{x} \forall x \in R$. then f is :
- (A) One-one
 - (B) Onto
 - (C) Many one
 - (D) f is not defined
8. Function $f: R \rightarrow R, f(x) = x^2$ is :
- (A) One-one onto
 - (B) One-one into
 - (C) Many one into
 - (D) Does not exist
9. The domain of the function $f(x) = \sqrt{4 - x^2}$ is all real x such that :
- (A) $x < 2$
 - (B) $x < -2$
 - (C) $-2 \leq x \leq 2$
 - (D) $x > -2$
10. 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) $\{-7, -5, -3\}$

11. The domain of $\sin^{-1}(4x)$ is :
- (A) $[0, 1]$
- (B) $\left[-\frac{1}{4}, \frac{1}{4}\right]$
- (C) $[-3, 3]$
- (D) None of these
12. If $f: R \rightarrow R$ and $g: R \rightarrow R$ are two mappings defined as $f(x) = 2x$ and $g(x) = x^2 + 2$, then the value of $(f + g)(2)$ is :
- (A) 8
- (B) 10
- (C) 12
- (D) 24
13. If $f(x) = \frac{x+2}{x-3}$, $x \neq 3$, then $f^{-1}(x)$ is equal to :
- (A) $\frac{x-1}{3x+2}$
- (B) $\frac{3x+2}{x-1}$
- (C) $\frac{x-3}{x+2}$
- (D) None of these
14. If $f(x) = x^2$ and $g(x) = \sin x$, then the value of $g \circ f(x)$ is :
- (A) $\cos x$
- (B) $\sin x$
- (C) $-\sin x^2$
- (D) $\sin x^2$

15. Let $f: \mathbb{Z} \rightarrow \mathbb{Z}$ (Set of integers) be defined by $f(x) = x^2 + x - 2$, then $f(f(-2))$ is :
- (A) -2
(B) -1
(C) 1
(D) 3
16. If $f: \mathbb{R} \rightarrow \mathbb{R}$ and $g: \mathbb{R} \rightarrow \mathbb{R}$ are two mappings, where $f(x) = 2x$ and $g(x) = x^2 + 2$ then the value of $f(g(2))$ will be :
- (A) 4
(B) 6
(C) 12
(D) 10
17. If function $f: \mathbb{Q} \rightarrow \mathbb{Q}$ is defined by the relation $f(x) = 3x - 4$, $x \in \mathbb{Q}$ where $\mathbb{Q}$, set of rational numbers, then f is :
- (A) Many one-onto mapping
(B) One-one into mapping
(C) Many one-into mapping
(D) One-one onto mapping
18. Let $f: \mathbb{R} \rightarrow \mathbb{R}$ 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) None of these

19. The relation "less than" in the set of natural numbers is :
 (A) Only Symmetric
 (B) Only reflexive
 (C) Only transitive
 (D) Equivalence relation
20. The relation $R = \{(1, 1), (2, 2), (3, 3), (1, 2), (2, 3), (1, 3)\}$ on set $A = \{1, 2, 3\}$ is :
 (A) Reflexive but not symmetric
 (B) Reflexive but not transitive
 (C) Symmetric and transitive
 (D) None of these
21. If $R = \{(2, 1), (4, 3), (4, 5), (3, 5)\}$ then range of the function is ?
 (A) Range $R = \{2, 3, 4\}$
 (B) Range $R = \{1, 3, 5\}$
 (C) Range $R = \{1, 2, 3, 4, 5\}$
 (D) Range $R = \{2, 3, 4, 5\}$
22. If $R \subset A \times B$ and $S \subset B \times C$ be two Relations, then $(SoR)^{-1}$ equal to :
 (A) $S^{-1} \circ R^{-1}$
 (B) $R^{-1} \circ S^{-1}$
 (C) SoR
 (D) RoS
23. Let $A = \{a, b, c\}$ and $B = \{1, 2\}$ consider a relation R defined from set A to set B .
 Then R is equal to set :
 (A) A
 (B) B
 (C) $A \times B$
 (D) $B \times A$

24. 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) None of these
25. If R is an equivalence relation on a set A , then R^{-1} is :
- (A) Reflexive only
 - (B) Symmetric but not transitive
 - (C) Equivalence
 - (D) None of these
26. Let R and S be two equivalence relations on a set A . Then :
- (A) $R \cup S$ is an equivalence relation on A
 - (B) $R \cap S$ is an equivalence relation on A
 - (C) $R - S$ is an equivalence relation on A
 - (D) None of these
27. Let $A = \{1, 2, 3\}$, $B = \{1, 3, 5\}$. If relation R from A to B is given by $R = \{(1, 3), (2, 5), (3, 3)\}$. Then R^{-1} is :
- (A) $\{(3, 3), (3, 1), (5, 2)\}$
 - (B) $\{(1, 3), (2, 5), (3, 3)\}$
 - (C) $\{(1, 3), (5, 2)\}$
 - (D) None of these
28. Let R be a relation on a set A such that $R = R^{-1}$, then R is :
- (A) Reflexive
 - (B) Symmetric
 - (C) Transitive
 - (D) None of these

29. The set of Positive integers is :
- (A) Infinite
 - (B) Subset
 - (C) Finite
 - (D) Empty
30. The subset of the set $\{0\}$ will be :
- (A) ϕ
 - (B) $\phi, \{0\}$
 - (C) $\{0\}$
 - (D) None of these
31. In a group of 60 people, 27 like cold drinks and 42 like hot drinks and each person like at least one of the drinks. How many like both hot drinks and cold drinks ?
- (A) 30
 - (B) 15
 - (C) 14
 - (D) 9
32. The Cardinality of the set $A = \{1, 2, 3, 5\}$ is :
- (A) 4
 - (B) 5
 - (C) Integer
 - (D) None of these
33. If A, B, C are sets, which of the following is correct ?
- (A) $A \cup (B \cap C) = (A \cup B) \cap C$
 - (B) $A \cap (B \cup C) = (A \cap B) \cup C$
 - (C) $A \cap (B \cap C) = (A \cap B) \cap C$
 - (D) $A - (B \cup C) = (A - B) \cup C$

34. The set is infinite if it has the numbers of elements :
(A) Zero
(B) One
(C) Finite
(D) Infinite
35. Which of the following is a finite set ?
(A) Set of Natural Numbers
(B) Set of Whole Numbers
(C) Set of even numbers
(D) Set of even prime numbers
36. Let A and B be two sets such that $n(A) = 0.16$, $n(B) = 0.14$, $n(A \cup B) = 0.25$,
Then $n(A \cap B)$ is equal to :
(A) 0.3
(B) 0.5
(C) 0.05
(D) None of these
37. If the set A has m-elements, B has n-elements, then the number of elements in
 $A \times B$ is :
(A) mn
(B) $m + n + 1$
(C) $m + n - 1$
(D) None of these
38. The number of elements in the power set of a set having n-elements is :
(A) $2^n - 2$
(B) $2^n - 1$
(C) 2^n
(D) 2^{n-1}

39. If A, B, C are subsets of a Universal set S , then $(A - C) \cup (B - C) =$
- $(A \cup B) - C$
 - $(A \cup C) - B$
 - $(A \cap B) - C$
 - None of these
40. If A, B, C are three sets, then $A \cap (B \cup C)$ is equal to :
- $(A \cup B) \cap (A \cup C)$
 - $(A \cap B) \cup (A \cap C)$
 - $(A \cup B) \cup (A \cup C)$
 - None of these
41. If $A \subseteq B$, then :
- $A - B = A$
 - $A - B = B$
 - $A \cup B = A$
 - $A - B = \phi$
42. $A = \{1, 2, 3\}$ and $B = \{3, 8\}$, then $(A \cup B) \times (A \cap B)$ is :
- $\{(3, 1), (3, 2), (3, 3), (3, 8)\}$
 - $\{(1, 3), (2, 3), (3, 3), (8, 3)\}$
 - $\{(1, 1), (2, 2), (3, 3), (8, 8)\}$
 - $\{(8, 3), (8, 2), (8, 1), (8, 8)\}$
43. If $A \cup B = A \cup C, A \cap B = A \cap C$, then :
- $B = C$
 - $A = B$
 - $A = C$
 - None of these
44. If $A = \{1, 3, 5\}, B = \{4, 5, 7\}$ and $C = \{1, 3, 4, 11\}$ then $(A \cup B) \cap C =$
- $\{1, 3, 4, 7, 9, 11\}$
 - $\{3, 4, 9, 11\}$
 - $\{7\}$
 - None of these

45. $n(A \cup B)$ is equal to :
- $n(A) + n(B) - n(A \cap B)$
 - $n(A) + n(B)$
 - $n(A) \cup n(B)$
 - $n(A) + n(B) + n(A \cap B)$
46. If A and B be any two sets, then $(A \cap B)'$ is equal to :
- $A' \cap B'$
 - $A' \cup B'$
 - $A \cap B$
 - $A \cup B$
47. If A, B and C are any three sets, then $A - (B \cap C)$ is equal to :
- $(A - B) \cup (A - C)$
 - $(A - B) \cap (A - C)$
 - $(A - B) \cup C$
 - $(A - B) \cap C$
48. If $A = \{2, 4, 5\}$, $B = \{7, 8, 9\}$ then $n(A \times B)$ is equal to :
- 6
 - 3
 - 0
 - 9
49. Let $n(U) = 700$, $n(A) = 200$, $n(B) = 300$ and $n(A \cap B) = 100$, then $n(A \cup B)^c$ is equal to :
- 400
 - 600
 - 300
 - 200
50. Which of the following two sets are equal ?
- $A = \{1, 2\}$ and $B = \{1\}$
 - $A = \{1, 2, 3\}$ and $B = \{2, 1, 3\}$
 - $A = \{1, 2\}$ and $B = \{1, 2, 3\}$
 - $A = \{1, 2, 4\}$ and $B = \{1, 2, 3\}$

51. If $u = x^3 + y^3 + z^3 - 3xyz$, then value of $x \frac{\partial u}{\partial x} + y \frac{\partial u}{\partial y} + z \frac{\partial u}{\partial z} =$
- (A) 0
(B) u
(C) 3u
(D) 2u
52. An empty set is also called :
- (A) Null set
(B) Void set
(C) Both (A) and (B) are correct
(D) None of the above
53. Find the degree of homogeneous function $f(x, y) = x^2 + y^2 + 3xy$:
- (A) 0
(B) -2
(C) 1
(D) 2
54. The area enclosed between the straight line $y = x$ and the parabola $y = x^2$ in the xy plane is :
- (A) $\frac{1}{6}$
(B) $\frac{1}{4}$
(C) $\frac{1}{3}$
(D) None of these
55. The area between the Parabolas $y^2 = 4ax$ and $x^2 = 4ay$ is :
- (A) $\frac{2}{3}a^2$
(B) $\frac{14}{3}a^2$
(C) $\frac{16}{3}a^2$
(D) None of these
56. The value of $\int_1^2 \int_1^3 dx dy$
- (A) 1
(B) 2
(C) 3
(D) 4

57. The value of $\int_{-1}^1 \int_{-1}^1 xy \, dx \, dy =$
- (A) 1
(B) $\frac{1}{4}$
(C) $\frac{1}{2}$
(D) 0
58. The value of $\int_0^2 \int_0^2 \int_0^2 xyz \, dx \, dy \, dz :$
- (A) 2
(B) 6
(C) 8
(D) 4
59. The value of integral $\int_0^{\frac{\pi}{2}} \int_0^2 r \, dr \, d\theta :$
- (A) $\frac{\pi}{2}$
(B) π
(C) 1
(D) $\frac{1}{2}$
60. The value of $\int_0^2 \int_0^y xy \, dx \, dy$ is :
- (A) 0
(B) -1
(C) 2
(D) 1
61. The value of $\int_0^1 \int_0^1 \int_0^1 e^{x+y+z} \, dx \, dy \, dz :$
- (A) $(e - 1)$
(B) $(e - 1)^2$
(C) $(e - 1)^3$
(D) 0

62. $\int_0^1 \int_0^1 x^2 dx dy =$

- (A) 0
- (B) 1
- (C) 3
- (D) $\frac{1}{3}$

63. Changing the order of integration the integral $\int_2^3 \int_0^1 f(x, y) dx dy$ is equal to :

- (A) $\int_0^1 \int_2^3 f(x, y) dx dy$
- (B) $\int_0^1 \int_2^3 f(x, y) dy dx$
- (C) $\int_2^3 \int_0^1 f(x, y) dy dx$
- (D) None of these

64. $\int_0^\pi \int_0^\pi d\theta d\phi$ is :

- (A) 1
- (B) 0
- (C) $\frac{\pi}{2}$
- (D) π^2

65. What is the volume of a cube with side a ?

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

66. Triple Integral is used to calculate :

- (A) Area
- (B) Volume
- (C) (A), (B) both
- (D) None of these

67. Double Integral $\int_0^a \int_0^d dx dy$ represents :
- (A) Volume
(B) Area
(C) Both Volume and Area
(D) None of these
68. Curve $y^2 = 4x$ is a :
- (A) Parabola
(B) Hyperbola
(C) Straight line
(D) Ellipse
69. The change of order of Integration $\int_0^1 \int_0^x dx dy$:
- (A) $\int_0^1 \int_y^1 dy dx$
(B) $\int_0^1 \int_0^y dy dx$
(C) $\int_0^1 \int_0^1 dy dx$
(D) None of these
70. The value of $\int_0^1 \int_0^2 \int_0^3 dx dy dz$ is :
- (A) 11
(B) 12
(C) 3
(D) 6
71. The value of $\int_0^1 \int_0^x dx dy$ is :
- (A) $-\frac{3}{2}$
(B) $\frac{1}{2}$
(C) $\frac{3}{2}$
(D) None of these

72. If $f(x, y) = x^2 + y^2 + 6x + 12$, then has extreme value at :
 (A) $(-3, 0)$
 (B) $(0, 3)$
 (C) $(0, -3)$
 (D) None of these
73. For function $f(x, y)$ to have maximum value at (a, b) is :
 (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 $r < 0$
74. For function $f(x, y)$ to have minimum value at (a, b) is :
 (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 $r < 0$
75. If $f(x, y) = x^2 + y^2$, then has extreme value at :
 (A) $(1, 1)$
 (B) $(0, 0)$
 (C) $(1, 2)$
 (D) None of these
76. What is saddle point ?
 (A) Point where function has maximum value
 (B) Point where function has minimum value
 (C) Point where function neither have maximum value nor minimum value
 (D) None of these
77. If $u = x^2 + 2y^2$, then $x \frac{\partial u}{\partial x} + y \frac{\partial u}{\partial y} =$
 (A) u
 (B) 0
 (C) $3u$
 (D) $2u$

78. What is the value of $\frac{\partial^2 z}{\partial x \partial y}$ for the $z = 3x^2y + 5y$?
- (A) $3xy$
 (B) $6x$
 (C) $3x + y$
 (D) $6xy$
79. If $f(x, y) = \frac{x+y}{y}$, $x \frac{\partial f}{\partial x} + y \frac{\partial f}{\partial y} =$
- (A) 0
 (B) f
 (C) $2f$
 (D) $3f$
80. The degree of homogenous function $u = \frac{x^2y^2}{x^2+y^2}$ is :
- (A) 4
 (B) 0
 (C) -4
 (D) 2
81. If $z = x^2 + y^2 + 3xy$ then, what is $\frac{\partial z}{\partial x}$?
- (A) $3y$
 (B) $2x$
 (C) $2y + 3x$
 (D) $2x + 3y$
82. If u is a homogeneous function of degree n , then $x^2 \frac{\partial^2 u}{\partial x^2} + 2xy \frac{\partial^2 u}{\partial x \partial y} + y^2 \frac{\partial^2 u}{\partial y^2} =$
- (A) nu
 (B) $n(n-1)u$
 (C) n^2u
 (D) None of these

83. If $u = f\left(\frac{y}{x}\right)$, then :

(A) $x \frac{\partial u}{\partial x} + y \frac{\partial u}{\partial y} = 0$

(B) $x \frac{\partial u}{\partial x} - y \frac{\partial u}{\partial y} = 0$

(C) $x \frac{\partial u}{\partial x} + y \frac{\partial u}{\partial y} = 1$

(D) None of these

84. If $u = x^2 + 2xy + y^2 + x + y$, then $x \frac{\partial u}{\partial x} + y \frac{\partial u}{\partial y}$ is equal to :

(A) $2u$

(B) u

(C) 0

(D) None of these

85. If $u = \frac{x^{\frac{1}{3}} + y^{\frac{1}{3}}}{x^{\frac{1}{4}} + y^{\frac{1}{4}}}$ is a homogenous function of degree :

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

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

(C) $\frac{1}{12}$

(D) 0

86. A function $f(x, y)$ of two variable x and y is said to be homogeneous function of degree n , then :

(A) $x \frac{\partial f}{\partial x} + y \frac{\partial f}{\partial y} = nf$

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

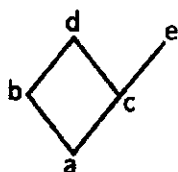
(C) $x \frac{\partial f}{\partial x} + y \frac{\partial f}{\partial y} = -nf$

(D) None of these

87. $\frac{\sqrt{x}-\sqrt{y}}{\sqrt{x}+\sqrt{y}}$ is a homogenous function of degree : $\therefore$ $\frac{\partial}{\partial x}$
- (A) 0
(B) 1
(C) $\frac{1}{2}$
(D) $\frac{3}{2}$
88. If $f(x, y)$ is a homogeneous function of x and y of degree n , then :
- (A) If the sum of powers of x and y in every term is same and it is equal to n
(B) It can be expressed of $x^n f\left(\frac{y}{x}\right)$
(C) It can be expressed of $y^n f\left(\frac{x}{y}\right)$
(D) All of the above
89. If $u = \log(x + y + 1)$, then $\frac{\partial u}{\partial x}$ at $(1, 2)$ is :
- (A) $\frac{1}{2}$
(B) $\frac{1}{3}$
(C) $\frac{1}{4}$
(D) 3
90. If $u = x^3 + y^3$, then $\frac{\partial u}{\partial x}$ at $(1, 2)$ is :
- (A) 3
(B) 2
(C) 4
(D) 5
91. If $u = ax^2 + 2hxy + by^2$ then using Euler's theorem find $x \frac{\partial u}{\partial x} + y \frac{\partial u}{\partial y} =$
- (A) u
(B) $2u$
(C) $3u$
(D) $n(n - 1)$

92. The dual of the statement $p \wedge [q \wedge (p \vee q) \wedge r]$ is :
- (A) $p \vee [q \wedge (p \vee q) \vee r]$
 (B) $p \wedge [q \vee (p \wedge q) \wedge r]$
 (C) $p \vee [q \vee (p \wedge q) \vee r]$
 (D) None of the above
93. The domain of the function $f = \{(1, 3), (3, 5), (2, 6)\}$ is :
- (A) 1, 3 and 2
 (B) 3, 5, 6 and 2
 (C) 1, 3, 2, 5, 6
 (D) None of these
94. The absorption law is defined as :
- (A) $a \vee (a \vee b) = b$
 (B) $a \vee (a \wedge b) = b$
 (C) $a \wedge (a \wedge b) = a \vee b$
 (D) $a \wedge (a \vee b) = a$
95. Let $X = \{2, 3, 6, 12, 24\}$, Let $\leq$ be the partial order defined by $X \leq Y$ if x divides y . Number of edges in the Hasse diagram of $(X, \leq)$ is :
- (A) 3
 (B) 9
 (C) 4
 (D) None of the above
96. 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 :
- (A) 30
 (B) 15
 (C) 10
 (D) 6

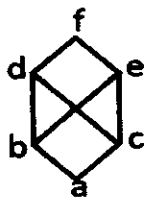
97. Which element is 'minimal' in the following diagram ?



- (A) d
(B) b
(C) c
(D) a
98. $a \wedge (b \vee c) = (a \wedge b) \vee (a \wedge c)$ is :

- (A) Distributive law
(B) Associative law
(C) Commutative law
(D) None of these

99. The graph given below is an example of :



- (A) Non lattice
(B) Semi lattice
(C) Lattice
(D) None of these
100. $a \wedge (b \wedge c) = (a \wedge b) \wedge c$ is :
- (A) Distributive law
(B) Associative law
(C) Commutative law
(D) None of these

Rough Work / रफ़ कार्य

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