Online Assessment (Special Examination) (Even Sem/Part-I/Part-II Examinations 2019 - 2020

Course Name -Discrete Mathematics
Course Code -M201

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◯ B.SC.(BT)

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◯ LLB

◯ PGDHM

◯ Dip.CSE

◯ Dip.ECE

◯ Dip.EE

◯ Dip.CE

◯ Dip.ME

◯ MCA

◯ M.SC.(CS)

◯ M.SC.(ANCS)

◯ M.SC.(MM)

◯ MBA

◯ M.SC.(BT)

◯ M.TECH(CSE)

◯ LLM

◯ M.A.(JMC)

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Answer all the questions. Each question carry one mark.

9.   1. An one-to-one function is known as

Mark only one oval.

◯ injective function

◯ surjective function

◯ bijective function

◯ None of these

10.   2. If X U {3,4} = {1,2,3,4,5,6} then which of the following is true?

Mark only one oval.

◯ Smallest set X = {1,2,5,6}

◯ Smallest set X = {1,2,3,5,6}

◯ Smallest set X = {1,2,3,4}

◯ Greatest set X = {1,2,3,4}

11.   3. Given the relation R={(a,b),(b,c)} in the set A={a,b,c} then the minimum number
       of ordered pairs which added to R make it an equivalence relation is

       Mark only one oval.

       ◯ 5

       ◯ 6

       ◯ 7

       ◯ 8

12.   4. The negation of "All students live in dormitories" is

       Mark only one oval.

       ◯ All students do not live in dormitories.

       ◯ No student live in dormitories.

       ◯ One student does not live in dormitories.

       ◯ Some students do not live in dormitories.

13.   5. The number of three digit number that can be formed from the digits 1,3,5,7 is

       Mark only one oval.

       ◯ 24

       ◯ 6

       ◯ 4

       ◯ None of these

14. 6. In how many ways 7 different beads can be arranged to form a necklace?

Mark only one oval.

◯ 250

◯ 300

◯ 360

◯ 350

15. 7. The number of words of 5 different letters that can be formed by taking 2 letters from the word BOX and 3 letters from the word TABLE is

Mark only one oval.

◯ 120

◯ 30

◯ 3600

◯ None of these

16. 8. The number of numbers from 1 to 7 are chosen so that two of them will add upto 8 is

Mark only one oval.

◯ 3

◯ 4

◯ 5

◯ 9

17. 9. What is multiplication of the sequence 1, 2, 3, 4,... by the sequence 1, 3, 5, 7,11,...?

Mark only one oval.

- ◯ 1, 5, 14, 30,...
- ◯ 2, 8, 16, 35,...
- ◯ 1, 4, 7, 9, 13,...
- ◯ 4, 8, 9, 14, 28,...

18. 10. The possible number of vertices in a binary tree is

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- ◯ 4
- ◯ 6
- ◯ 5
- ◯ 2

19. 11. Every vertex of a null graph is

Mark only one oval.

- ◯ Pendant
- ◯ Isolated
- ◯ Odd
- ◯ None of these

20. 12. Choose the correct statement.

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○ every walk is a path

○ every circuit is a path

○ every loop is a circuit

○ The origin and the terminus of a walk are always same

21. 13. A complete graph must be a

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○ circuit

○ regular graph

○ non-simple graph

○ null-graph

22. 14. A simple graph has

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○ no parallel edges

○ no loops

○ no parallel edges and no loops

○ no isolated vertex

23.   15. A binary tree has exactly

Mark only one oval.

○ two vertices of degree 2

○ one vertex of degree 2

○ one vertex of degree 1

○ one vertex of degree 3

24.   16. A tree always is a

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○ self complement graph

○ Euler graph

○ simple graph

○ Hamiltonian graph

25.   17. A connected graph with 150 vertices and 149 edges is

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○ Not a minimally connected graph

○ Euler graph

○ Binary tree

○ Tree

26. 18. Minimal spanning tree is found by

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○ Dijkstra's algorithm

○ Ford-Fukerson's algorithm

○ Floyd algorithm

○ Kruskal's algorithm

27. 19.

According to De-Morgan's law $[A \cup (B \cap C)]^c$

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$A^c \cap (B \cap C)$

Option 1

$A^c \cap (B^c \cup C^c)$

Option 2

$A^c \cup (B^c \cap C^c)$

Option 3

None of these

28.   20.

If $f:A \rightarrow B$ where $B = \{0, 1, 4, 9\}$ and f is defined by the rule $f(x) = x^2$. For which set A is the one-to-one function

Mark only one oval.

○ {-1,0,1,2}

○ {-3,-1,0,2,3}

○ {-2,0,-1,2}

○ None of these

29.   21. Let N be the set of natural numbers and R be the relation in N defined as R = {(a, b) : a = b − 2, b > 6}. Then

Mark only one oval.

$(2, 4) \in R$

$(8, 7) \in R$

○ Option 1   ○ Option 2

$(3, 8) \in R$

$(6, 8) \in R$

○ Option 3   ○ Option 4

30.   22.

If the matrix $\begin{pmatrix} 8 & -6 & 2 \\ -6 & 7 & -4 \\ 2 & -4 & \lambda \end{pmatrix}$ is singular then the value of λ is

Mark only one oval.

- 3
- 5
- 2
- 4

31.   23.

If $A=\begin{pmatrix} 2 & -1 \\ 1 & 3 \end{pmatrix}$, then $A^2+7I=$

Mark only one oval.

- 0
- 2A
- 3A
- 5A

32.   24.

Negation of $\exists x \forall y, p(x, y)$ is

Mark only one oval.

$\forall x \exists y, \neg p(x, y)$

○ Option 1

$\exists x \exists y, \neg p(x, y)$

○ Option 2

$\forall x \forall y, p(x, y)$

○ Option 3

○ None of these

33.   25. A graph G has a spanning tree iff G is
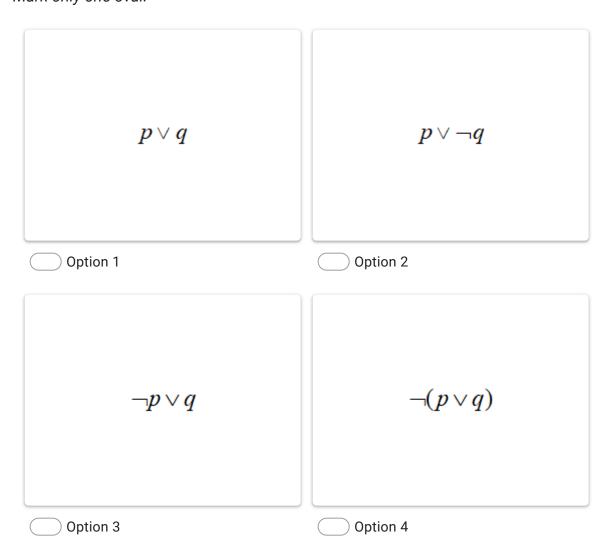
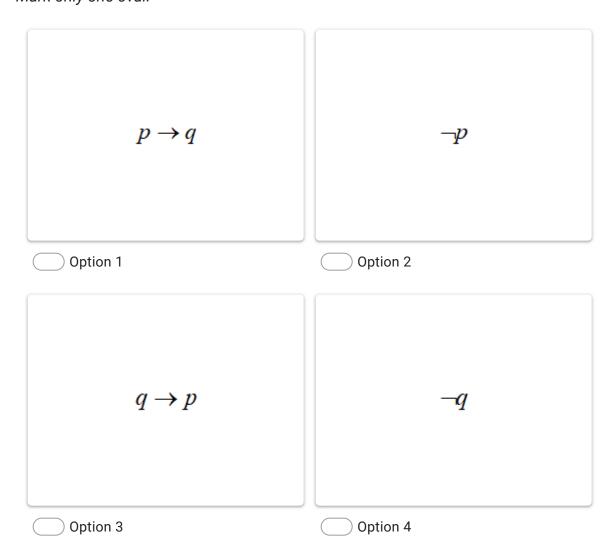*Mark only one oval.*

○ regular

○ connected

○ simple

○ tree

34.   26.

If p:"anil is rich" and q:"kanchan is poor" then the symbolic from the statement "Either Anil or Kanchan is rich" is

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$p \vee q$

○ Option 1

$p \vee \neg q$

○ Option 2

$\neg p \vee q$

○ Option 3

$\neg (p \vee q)$

○ Option 4

35.   27.

If $p \leftrightarrow q \equiv (p \rightarrow q) \wedge r$, then r is

Mark only one oval.

$$p \rightarrow q$$

○ Option 1

$$\neg p$$

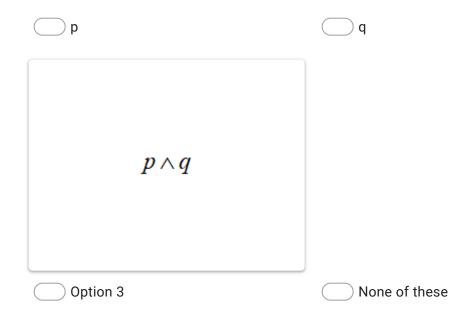○ Option 2

$$q \rightarrow p$$

○ Option 3

$$\neg q$$

○ Option 4

36.   28. If a graph has 6 vertices and 15 edges then the size of its adjacency matrix is

Mark only one oval.

○ 6X6

○ 6X15

○ 15X6

○ 15X15

37.   29.

$$p \vee (p \wedge q) \equiv$$

Mark only one oval.

⬭ p   ⬭ q

$$p \wedge q$$

⬭ Option 3   ⬭ None of these

38.   30. The root of a binary tree is the vertex having degree

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⬭ 1

⬭ 2

⬭ 3

⬭ 4

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