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

Course Name - Discrete Mathematics
Course Code - PCC-CS404

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- Dip.EE
- Dip.CE
- Dip.ME
- MCA
- M.SC.(CS)

- M.SC.(ANCS)
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- M.TECH(CSE)
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Answer all the questions. Each question carry one mark.

9. 1.Let R be a symmetric and transitive relation on a set A. Then

Mark only one oval.

- R is reflexive and hence a partial order
- R is reflexive and hence a equivalence relation
- R is not reflexive and hence a equivalence relation
- None of these

10. 2.

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

Mark only one oval.

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

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

11. 3. In a certain town 30% families own a scooter and 40% on a car 50% own neither a scooter nor a car 2000 families own both a scooter and car consider the following statements in this regard (1) 20% families own both scooter and car (2) 35% families own either a car or a scooter (3) 10000 families live in town Which of the above statement are correct?

Mark only one oval.

- 2 and 3
- 1 and 2
- 1 and 3
- 1, 2 and 3

12. 4.The number of elements in the power set of the set {a, b,c} is *

Mark only one oval.

- 2
- 4
- 6
- 8

13. 5.

If $f(x)=\frac{1-x}{1+x}$ then $f(f(\cos\theta))=$

Mark only one oval.

$\tan 2\theta$

Option 1

$\sec 2\theta$

Option 2

$\cos 2\theta$

Option 3

None of these

14. 6. 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

15. 7.

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

Mark only one oval.

- Option 1: $\forall x \exists y\, , \neg p(x, y)$
- Option 2: $\exists x \exists y\, , \neg p(x, y)$
- Option 3: $\forall x \forall y\, , p(x, y)$
- None of these

16. 8. If n pigeonholes are occupied by n+1 pigeons, then at least _____ number of hole is occupied by more than one pigeon. *

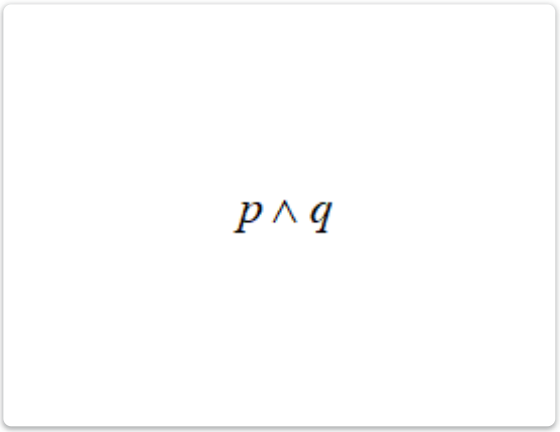
Mark only one oval.

- 2
- 1
- 3
- None of these

17. 9.

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

Mark only one oval.

- p
- q
- 
- Option 3
- None of these

18. 10.

Converse of "$\neg p \rightarrow q$" is

Mark only one oval.

$p \rightarrow \neg q$

Option 1

$q \rightarrow p$

Option 2

$\neg q \rightarrow \neg p$

Option 3

$q \rightarrow \neg p$

Option 4

19. 11.

If $P(n):1+3+5+...+(2n-1)=n^2$ is

Mark only one oval.

true $\forall n \in \mathbb{N}$

- true for n>1
- Option 2
- true for no n
- None of these

20. 12. In how many ways 7 different beads can be arranged to form a necklace? *

Mark only one oval.

- 250
- 300
- 350
- 360

21. 13.

If $(G,.)$ is a group with identity e such that $a^2 = e, \ \forall a \in G$, then G is

Mark only one oval.

- an abelian group
- a non-abelian group
- non-associative
- None of these

22. 14. The order of the multiplicative group (Z,*)

Mark only one oval.

- 1
- Finite but more than 1
- Infinite
- does not formed a group

23. 15. The number of ways in which 6 different flowers can be arranged in a garland is *

Mark only one oval.

- 120
- 60
- 240
- None of these

24. 16.

The number of elements in the group Z_3 is

Mark only one oval.

- 1
- 3
- 4
- 6

25. 17.

The order of the element $\bar{5}$ in the group $(Z_{35}, +)$ is-

Mark only one oval.

- 1
- 5
- 6
- 7

26. 18. Let f:G→ G' be a homorphism and e is the identity element of G. Then f(e)

Mark only one oval.

- identity element of G
- identity element of G'
- not an identity element of G'
- None of these

27. 19.

If in a ring R, $a^2 = a$ for all $a \in R$, then R

Mark only one oval.

- is commutative
- is non-commutative
- has characteristic 3
- has characteristic 4

28. 20. If G is a binary tree with n vertices, then the number of pendent vertex of G are

Mark only one oval.

- n
- (n+1)/2
- n(n+1)
- n(n-1)

29. 21. An edge whose two end vertices coincide is called

Mark only one oval.

- ring
- adjacent edge
- loop
- None of these

30. 22. The maximum number of edges of a simple graph with 5 vertices and 2 components is

Mark only one oval.

- 2
- 7
- 5
- 6

31. 23. The degree of the common vertex of two edges in series is

Mark only one oval.

- 0
- 1
- 2
- may be more than 2

32. 24. A minimally connected graph cannot have a

Mark only one oval.

- cycle
- component
- even vertex
- pendant vertex

33. 25. A complete graph must be a *

Mark only one oval.

- circuit
- regular graph
- non-simple graph
- null-graph

34. 26. Tree contains at least

Mark only one oval.

- one vertex
- two vertex
- three vertex
- None of these

35. 27. Dijkstra's algorithm is used to

Mark only one oval.

- find maximum flow in a network
- to scan all vertices of a graph
- find the shortest path from a specified vertex to another
- None of these

36. 28. A tree always is a

Mark only one oval.

- self complement graph
- Euler graph
- Simple graph
- Hamiltonian graph

37. 29. A graph G has a spanning tree if G is

Mark only one oval.

- regular
- connected
- simple
- tree

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

Mark only one oval.

- 1
- 2
- 3
- 4