

# B.Tech.-II (CSE)

\*Required

## Untitled section

Attempt all questions

Radius of a graph, denoted by  $\text{rad}(G)$  is defined by.... \*

1 point

- ☒  $\max \{e(v): v \text{ belongs to } V\}$
- ☐  $\max \{d(u,v): u \text{ and } v \text{ belongs to } G, u \text{ does not equal to } v\}$
- ☐  $\min \{d(u,v): u \text{ and } v \text{ belongs to } G, u \text{ does not equal to } v\}$
- ☐  $\min \{e(v): v \text{ belongs to } V\}$

In a complete graph with  $n$  vertices there is a total of \_\_\_\_\_ \*

1 point

- ☐  $n(n - 1)$  edges.
- ☐  $(1/2)n(n + 1)$  edges.
- ☐ None of the above
- ☒  $(1/2)n(n - 1)$  edges.
- ☐  $n(n + 1)$  edges.

The 'Subset' relation on a set of sets is \*

1 point

- ☐ An equivalence relation
- ☒ A partial ordering
- ☐ Transitive and anti symmetric only
- ☐ Transitive and symmetric only



The number of different permutations of the word BANANA is \*

1 point

- ☐ 720
- ☒ 60
- ☐ 360
- ☐ 120

\*

1 point

The statement, "Every comedian is funny" where  $C(x)$  is "x is a comedian" and  $F(x)$  is "x is funny" and the domain consists of all people.

$$\forall x(C(x) \rightarrow F(x))$$

☒ Option 4

$$\exists x(C(x) \wedge F(x))$$

☐ Option 1

$$\exists x(C(x) \rightarrow F(x))$$

☐ Option 3

$$\forall x(C(x) \wedge F(x))$$

☐ Option 2



If for some positive integer  $k$ , degree of vertex  $\deg(v)=k$  for every vertex  $v$  of the graph  $G$ , then  $G$  is called... \*

1 point

- ☒ k-regular graph
- ☐ k graph
- ☐ All of above
- ☐ Empty graph

Which of the followings is/are a tautology? \*

1 point

$$a \wedge b \rightarrow b \wedge c$$

$$a \vee b \rightarrow b \wedge c$$

☐ Option 2

☐ Option 1

$$a \vee b \rightarrow (b \rightarrow c)$$

$$a \rightarrow b \rightarrow (b \rightarrow c)$$

☐ Option 3

☒ Option 4



A graph has an Euler circuit if \_\_\_\_\_ \*

1 point

- ☐ it is connected and has an even number of edges.
- ☐ None of the above
- ☒ every vertex has even degree.
- ☒ it is connected and every vertex has even degree.
- ☐ it is connected and has an even number of vertices.

\*

1 point

The binary relation  $S = \emptyset$  (empty set) on a set  $A = \{1,2,3\}$  is

- ☐ Neither reflexive nor symmetric
- ☐ Symmetric and reflexive
- ☒ Transitive and symmetric
- ☐ Transitive and reflexive

A graph with 4 vertices and degree sequence 1, 1, 3, 3 is \_\_\_\_\_ \*

1 point

- ☐ circuitless
- ☒ disconnected graph.
- ☐ not possible to draw.
- ☒ connected graph
- ☐ simple graph

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