Course/Branch : ***C301*** /CSE	**Year / Semester** :II/III	Format No.	NAC/TLP-07a.13
Subject Code : ***MA8351***	**Subject Name** : Discrete Mathematics	Rev. No.	02
Unit No :3	**Unit Name : Graph**	Date	30.09.2020

OBJECTIVE TYPE QUESTION BANK

S. No.	Objective Questions (MCQ /True or False / Fill up with Choices)	BTL
1	A directed graph or digraph can have directed cycle in which _____ a) starting node and ending node are different **b) starting node and ending node are same** c) minimum four vertices can be there d) ending node does not exist	L2
2	What is a complete digraph? a) connection of nodes without containing any cycle b) connecting nodes to make at least three complete cycles c) start node and end node in a graph are same having a cycle **d) connection of every node with every other node including itself in a digraph**	L2
3	Degree of a graph with 12 vertices is _____ a) 25 b) 56 **c) 24** d) 212	L3
4	G is an undirected graph with n vertices and 26 edges such that each vertex of G has a degree at least 4. Then the maximum possible value of n is _____ a) 7 b) 43 **c) 13** d) 10	L3
5	Which of the following statements is/are TRUE for undirected graphs? P: Number of odd degree vertices is even. Q: Sum of degrees of all vertices is even. a) P only b) Q only **c) Both P and Q** d) Neither P nor Q	L2
6	What is the number of edges present in a complete graph having n vertices? a) (n*(n+1))/2 **b) (n*(n-1))/2** c) n	L2

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	d) Information given is insufficient	
7	What is the maximum number of edges in a bipartite graph having 10 vertices? a) 24 b) 21 **c) 25** d) 16	L2
8	The minimum number of edges in a connected cyclic graph on n vertices is _____ a) n – 1 **b) n** c) 2n+3 d) n+1	L2
9	What is the number of vertices in an undirected connected graph with 39 edges, 7 vertices of degree 2, 2 vertices of degree 5 and remaining of degree 6? a) 11 b) 14 **c) 18** d) 19	L2
10	Every Isomorphic graph must have _____ representation. a) cyclic b) adjacency list c) tree **d) adjacency matrix**	L2
11	A complete n-node graph K_n is planar if and only if _____ a) $n \geq 6$ b) $n^2 = n + 1$ **c) $n \leq 4$** d) $n + 3$	L2
12	A walk has Closed property if _____ **a) $v_0=v_k$** b) $v_0>=v_k$ c) $v < 0$ d) $v_k > 1$	L2

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13	A _____ in a graph G is a circuit which consists of every vertex (except first/last vertex) of G exactly once. a) Euler path **b) Hamiltonian path** c) Planar graph d) Path complement graph	L2
14	The _____ of a graph G consists of all vertices and edges of G. a) edge graph b) line graph c) path complement graph **d) eulerian circuit**	L2
15	Let G=(V,E) be a directed graph where V is the set of vertices and E the set of edges. Then which one of the following graphs has the same strongly connected components as GG? a)G1=(V,E1)where E1={(u,v)£E} **b)G2=(V,E2)where E2={(u,v)£E}** c) G3=(V,E3)where E3={(u,v)/there is a path of length<=2 from u to v in E} d)G4=(V,E3)where v4 is the set of vertices in G which are not isolated	L2
16	The number of distinct simple graph with upto three nodes is a)15 b)10 **c)7** d)5	L2
17	The minimum number of colours that is sufficient to vertex-colour any planar graph is _____ . a)2 **b)4** c)1 d)5	L2
18	Let G be an undirected complete graph on n vertices, where n > 2. Then, the number of different Hamiltonian cycles in G is equal to a)n! b)1 c)(n-1)! **d)(n-1)!/2**	L2
19	In a connected graph, bridge is an edge whose removal disconnects a graph. Which one of the following statements is true? a)A tree has no bridge	L2

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	b)A bridge cannot be a part of cycle c)Every edge of a clique with size>=3 is a bridge d)A graph with bridge cannot have a cycle	
20	The simple graph with n vertices the maximum degree is: a)a+1 b)2n-1 c)n **d)n-1**	L2
21	The maximum number of edges in a 8-node undirected graph without self loops is _____ a) 45 b) 61 **c) 28** d) 17	L3
22	Does the graph exists for the degree of vertices are 4,4,4,3,2 a)True **b)False**	L3
23	A graph with a vertex of degree_____ cannot have a Hamiltonian cycle a)1 b)2 c)0 d)3	L2
24	In any undirected graph,the sum of degrees of all the nodes a)must be even **b)is twice the number of edges** c)must be odd d)need not be even	L1
25	The number of vertices of odd degree in a graph is **a)always even** b) always odd c) either even or odd d) always zero	L1
26	A given connected graph G is a Euler graph if and only if all vertices of G are of a)same degree **b) even degree** c) odd degree d) different degree	L1
27	A simple graph in which there exists an edge between every pair of vertices is called **a)complete graph** b)Regular graph c)Planar graph d)Euler graph	L1
28	A vertex of degree zero is called -------	L1

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	a)pendant b) **isolated.** c)cut vertex d)incident	
29	A vertex of degree one is called ------- **a)pendant** b) isolated. c)cut vertex d)incident	L1
30	How many edges are there in a graph with 10 vertices each of degree six? **a)30** b)60 c)10 d)1	L2
31	A simple graph for which there is at least one pair of distinct vertex not connected by an edge is called ---------- **a)noncomplete graph** b)Regular graph c)Planar graph d)Euler graph	L1
32	Adding an additional vertex to a cycle called ---------- a)Planar **b)wheel** c)hectagon d)Polygon	L1
33	Sometimes the removal from a graph of a vertex and all incident edges produces a subgraph with more connected components. Such vertices are called ------ **a)cut vertices** b)edge cut c)bridge d)incident	L1
34	A cut vertices also known as---------- a)separating sets b)cut points c) articulation points **d)both a and c**	L1

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