Graph Theory

Question Bank

Helping Others Have Special taste

Questions

1) The characteristics of tree is ……

a) Undirected b) connected c) acyclic d) all of them

2) connected graph that does not contain even a single cycle is called ……

a) tree b) regular c) bipartite d) planar

3) The elements of trees are called…… and the edges of the tree are called ……..

a) Vertices , lines b)Nodes , branches c) Pointes , connections d)All of them

4) Tree with n vertices has ….. edges

a) n b) n/2 c) n-1 d) n+1

5) A leaf in a tree is a vertex of degree …..

a) One b) two c) three d) five

6) Any vertex having no children is called a ……

a) Root b) tree c) leaf d) all of them

7) …… is an undirected, disconnected, acyclic graph

a) Tree b) forest c) bridge d) none of them

8) disjoint collection of trees is known as …..

a)Tree b) forest c) bridge d) none of them

9) Each component of a forest called …..

a) tree b) vertex c) connection d) none of them

10) Properties of Trees …

a) Every edge of a tree is cut -edge

b) Adding one edge to a tree defines exactly one cycle

c) Every connected graph contains a spanning tree

d) all of the following

11) Every tree has at least two vertices of degree ….

a) one b) two c) three d) four

12) Every tree which has at least two vertices should have at least ….

a) two leaves b) one leaves c) three leaves d) zero leaves

13) …….. connected graph G is a sub-graph H of G that includes all the vertices of G and is also a tree

a) regular tree b) cut tree c) spanning tree d) none of them

14) We remove one of cycle's edges in the …… method

a) building up b) cutting down c) spanning d) all

15) We can find spanning tree systematically using ……..

a) building up b) cutting down c) a,b d) forest

16) in the ……. method repeat remove cycles edges until there are no cycles left

a) building up b) cutting down c) spanning d) all

17) Select edges of graph until all the vertices are included and no cycles are created this in …….. method

a) building up b) cutting down c) spanning d) al

18) The number of edges we need to delete from G in order to get a spanning tree

a) Circuit rank b) degree c) cutting down d) a, c

19) …… which is called the circuit rank

a) m + (n-1) b) m – (n-1) c) m – (n+1) d) m+(n+1)

20) In spanning tree G = m- (n-1) , m refer to …… , n refer to….

a) number of edges , number of vertices

b) number of vertices , number of edges

c) a , b are true

d) none of the following

21) ……. is a basic concept in Graph Theory

a) cutting b) spanning c) connectivity d) building

22) graph is said to be …….. if there is a path between every pair of vertex

a) complete b) connected c) disconnected d) regular

23) delete vertex from graph make the graph disconnected this vertex called ……

a) cut vertex b) build vertex c) span vertex d) bridge vertex

24) A connected graph may have at most …… cut vertices

a) n b) n-1 c) n-2 d) n/2

25) delete edge from graph make the graph in two or more graphs this edge called

a) cut edges b) bridge c) span edge d) a,b

26) the maximum number of cut edges possible is ……

a) n b) n-1 c) n-2 d) n/2

27) the minimum number of edges whose removal makes graph disconnected is called …

a) edge connectivity b) cut edges c) bridge vertex d) all

28) The minimum number of vertices whose removal makes graph disconnected

a) vertex connectivity b) cut vertex c) a, b d) none of the

29) If deleting a certain number of edges from a graph makes it disconnected, then those deleted edges are called the ……. of the graph

. a)cut set b) span set c) edge connectivity d) a, c

30) whenever cut edges exist, cut vertices also exist (T)

31) An undirected graph G which is connected and acyclic is called….

a) bipartite graph b) cyclic graph c) tree d) forest

32) An n-vertex graph has _____ edges.

a) n^2 b) n-1 c) n*n d) n*(n+1)/2

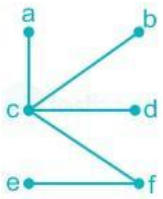
33) The tree elements are called _____

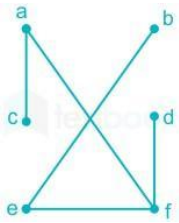
a) vertices b) nodes c) points d) edges

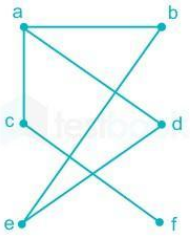
34. A graph which consists of disjoint union of trees is called _____

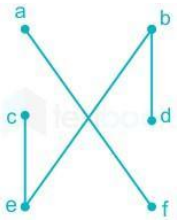
a) bipartite graph b) forest c) caterpillar tree d) labeled tree

35. Which of the following graphs are trees?

a) 

b) 

c) 

d) 

choose the correct answer

1) A and B only 2) A and B and D only 3) A and D only 4) A and B and C and D

36. Which of the following is false in the case of a spanning tree of a graph G?

a) It is tree that spans G
b) It is a subgraph of the G
c) It includes every vertex of the G
d) It can be either cyclic or acyclic

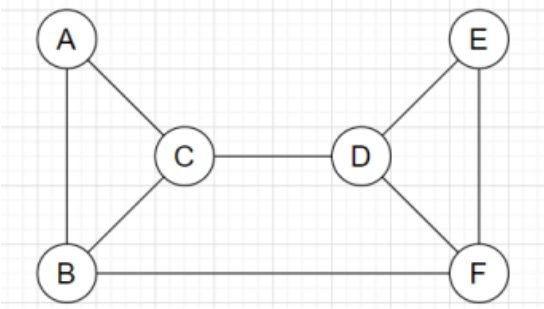
37. Every graph has only one minimum spanning tree.

a) True b) False

38. Consider a complete graph G with 4 vertices. The graph G has ____ spanning trees.

a) 15qq b) 8 c) 16 d) 13

39. What will be the cut vertex set of the graph given below?

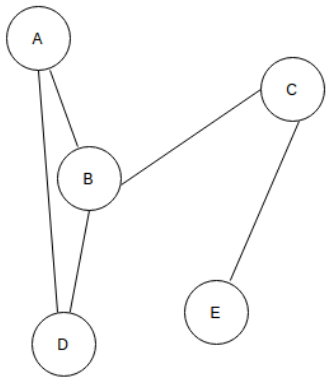


a) {C, A} b) {C, F} c) {A, E} d) {B, F}

40. A connected graph has a maximum of (n – 2) cut vertices.

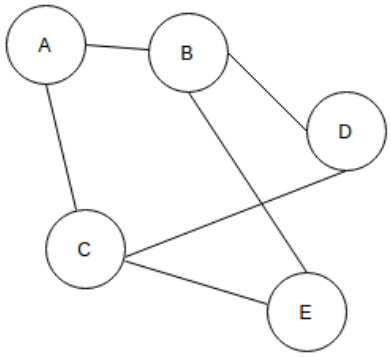
a) True b) False

41. In the given graph identify the cut vertices.



a) B and E b) C and D c) A and E d) C and B

42. For the given graph(G), which of the following statements is true?



a) G is a complete graph
b) G is not a connected graph
c) The vertex connectivity of the graph is 2
d) The edge connectivity of the graph is 1

43. A minimal spanning tree of a graph G is.... ?

a. A spanning sub graph

b. A tree

C)Minimum weights

d. All of above

44. In a connected graph, a bridge is an edge whose removal disconnects a graph. Which one of the following statements is True?

a. A tree has no bridge
b. A bridge cannot be part of a simple cycle
c. Every edge of a clique with size ≥ 3 is a bridge (A clique is any complete subgraph of a graph)
d. A graph with bridges cannot have a cycle

Answers

Questions	Answers
1	D
2	A
3	B
4	C
5	B
6	C
7	B
8	B
9	A
10	D

11	**b**
12	**A**
13	**C**
14	**B**
15	**C**
16	**B**

17	**A**
18	**A**
19	**B**
20	**A**
21	**C**
22	**B**
23	**A**
24	**C**

25	D
26	B
27	A
28	A
29	A
30	true
31	C
32	B
33	B
34	B
35	1
36	D
37	B
38	C
39	B
40	A

41	**D**
42	**C**
43	**D**
44	**B**