

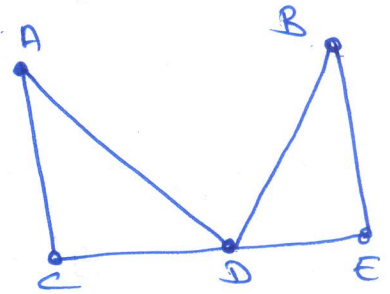
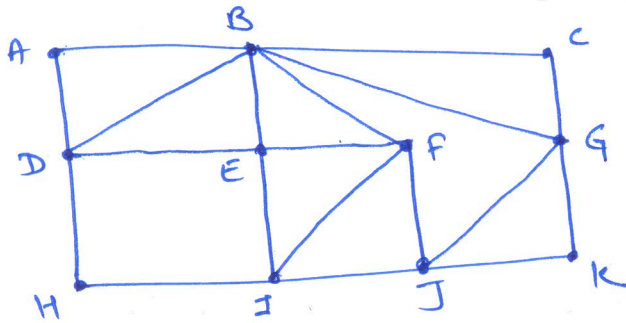
Assignment: III

Subject: DM

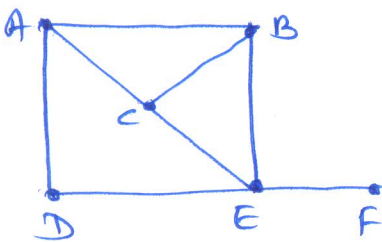
Class: SE(CSE) - I

Note: Last Date for submission of assignment is 09-11-2013

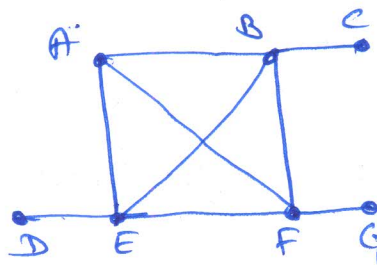
Q.1. Find an Euler circuit in the graph shown below.



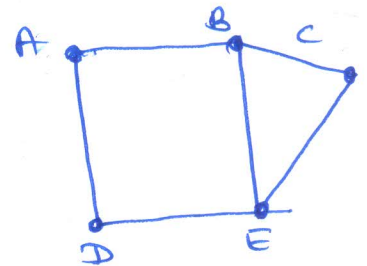
Q.2. Does the following graphs have a Hamiltonian path? If so, find such a path. If it does not, give an argument to show why no such path exists.



(a)

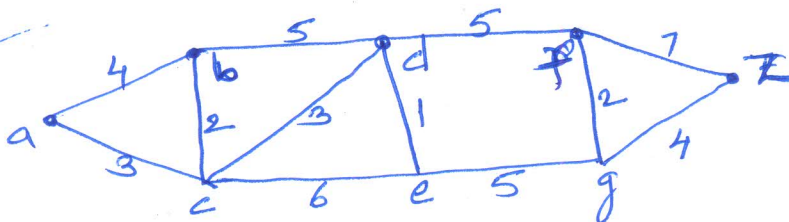


(b)



(c)

Q.3. Find the length of a shortest path between a and z in the given weighted graph.



Q.4 Define following terms.

(1) circuit

(2) path

(3) trail

(4) cycle

(5) null graph

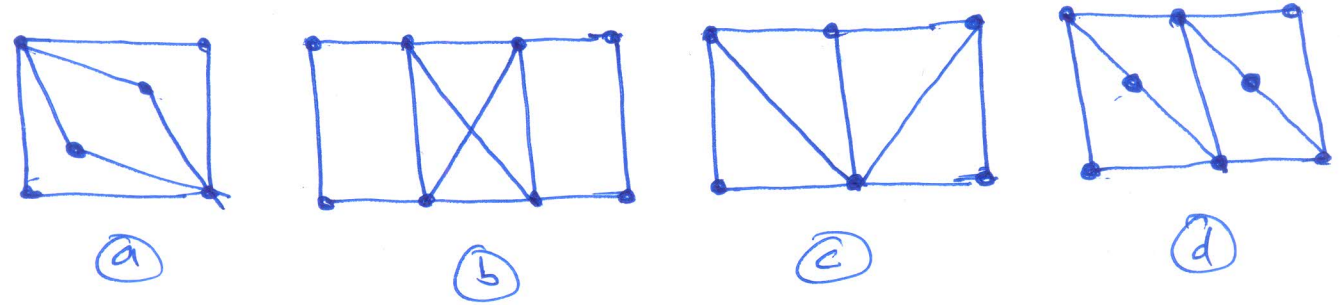
(6) pendant vertex

(7) order of graph.

(8) size of graph.

(9) isolated vertex.

Q5 Which of the following are Euler graph? Hamilton graph?



Q6 Define rooted tree. Explain following terms.

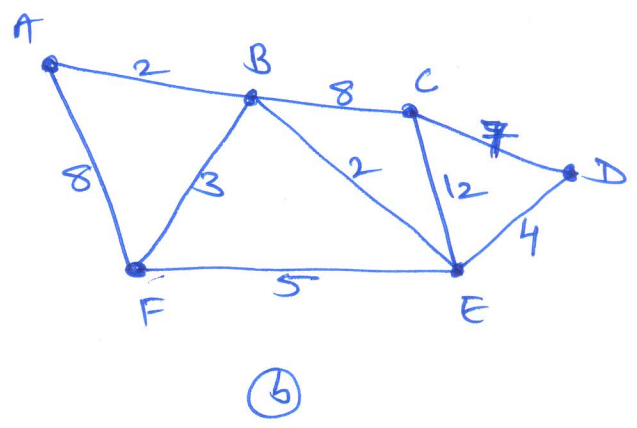
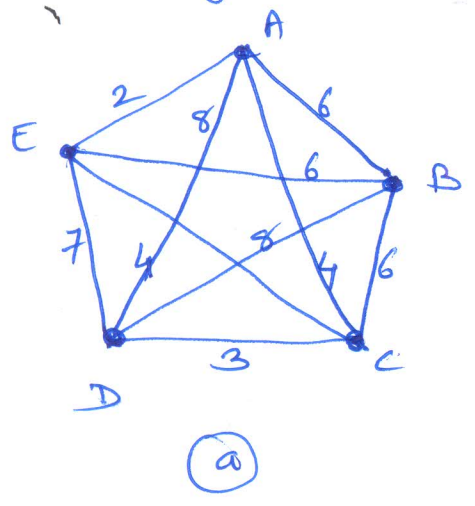
- ① Root                      ④ Ancestor                      ⑨ Left subtree
- ② parent                    ⑥ Descendants                    ⑩ Right subtree
- ③ child                      ⑦ leaf                              ⑪ left child
- ④ sibling                    ⑧ Internal vertex                ⑫ Right child.

Q.7 Use the Huffman coding to encode the following symbols with the frequencies listed: A=0.08, B=0.10, C=0.12, D=0.15, E=0.2, F=0.35. What is the average number of bits used to encode a character?

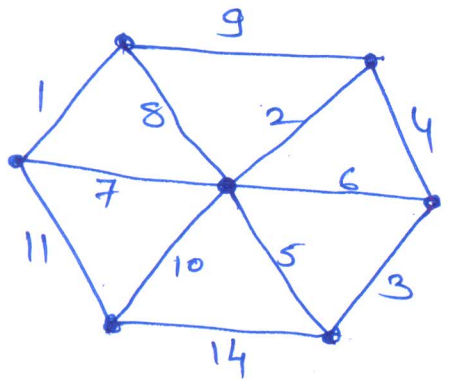
Q.8. Explain Depth-First search with example.

Q.9 Explain Breadth-First search with example.

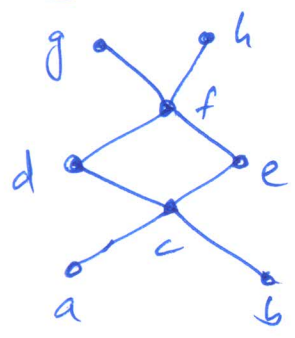
Q.10 Use the Prim's algorithm to find a minimum spanning tree for the given weighted graph.



Q.11 Use the Kruskal's algorithm to find a minimum spanning tree for the weighted graph



Q.12 Consider the Hasse diagram of a poset  $(A, R)$

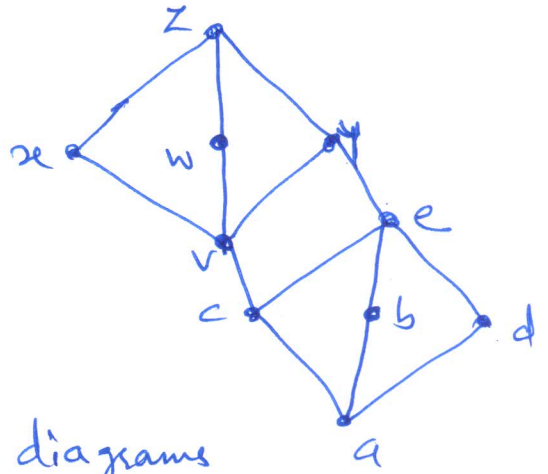


if  $B = \{c, d, e, f\}$ , find

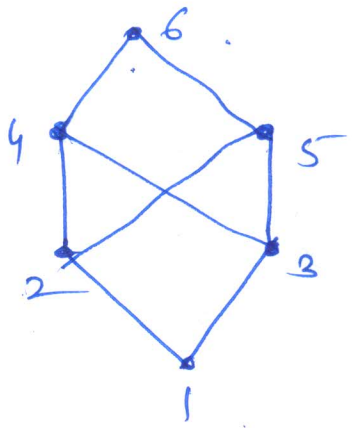
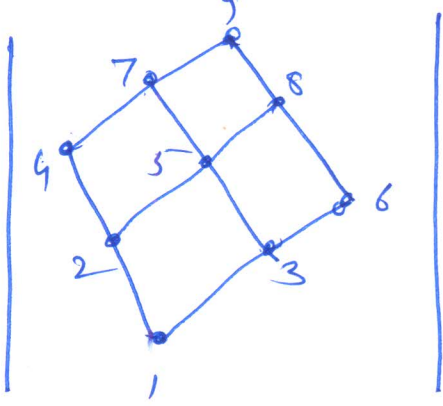
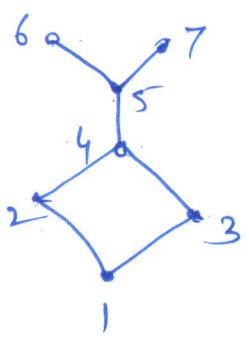
- ① all upper bounds of B
- ② all lower bounds of B
- ③ LUB and GLB of B.

Q.13 For the poset  $(A, R)$  represented by the following Hasse diagram, find

- ①  $GLB\{b, c\}$
- ②  $GLB\{b, w\}$
- ③  $GLB\{e, x\}$
- ④  $LUB\{e, b\}$
- ⑤  $LUB\{d, z\}$
- ⑥  $LUB\{c, e\}$
- ⑦  $LUB\{a, v\}$



Q.14 Which of the following Hasse diagrams represent lattices.





Q.15 Explain Lattice as Algebraic system.

Q.16 Explain special Lattices

Subject Incharge.

~~Signature~~  
Mohseen Ahmed.