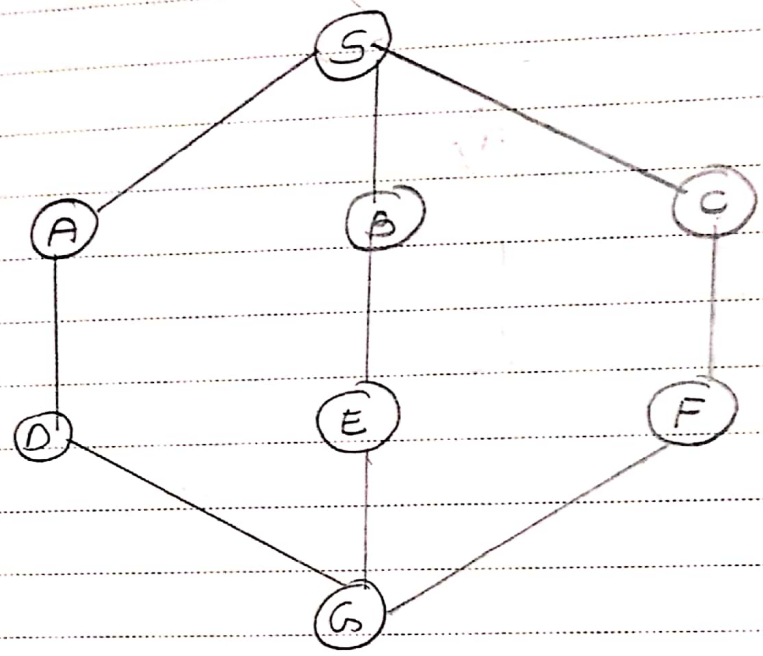
DATE : / /

Graph Traversals:

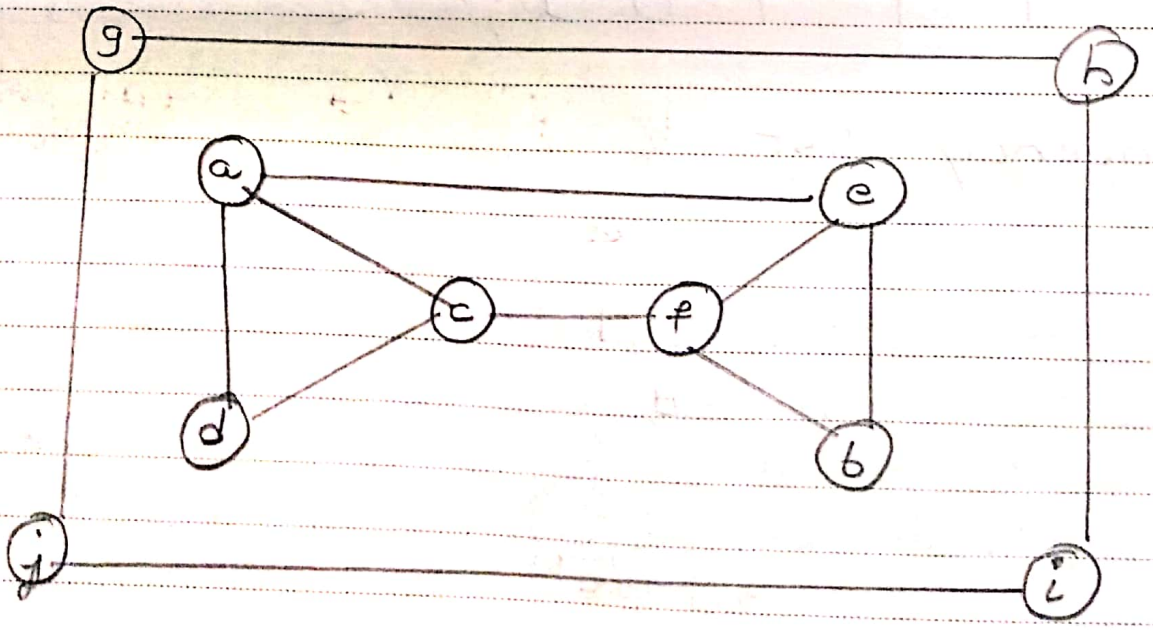
Eg: 1)



Depth First Search: S A D G E B F C

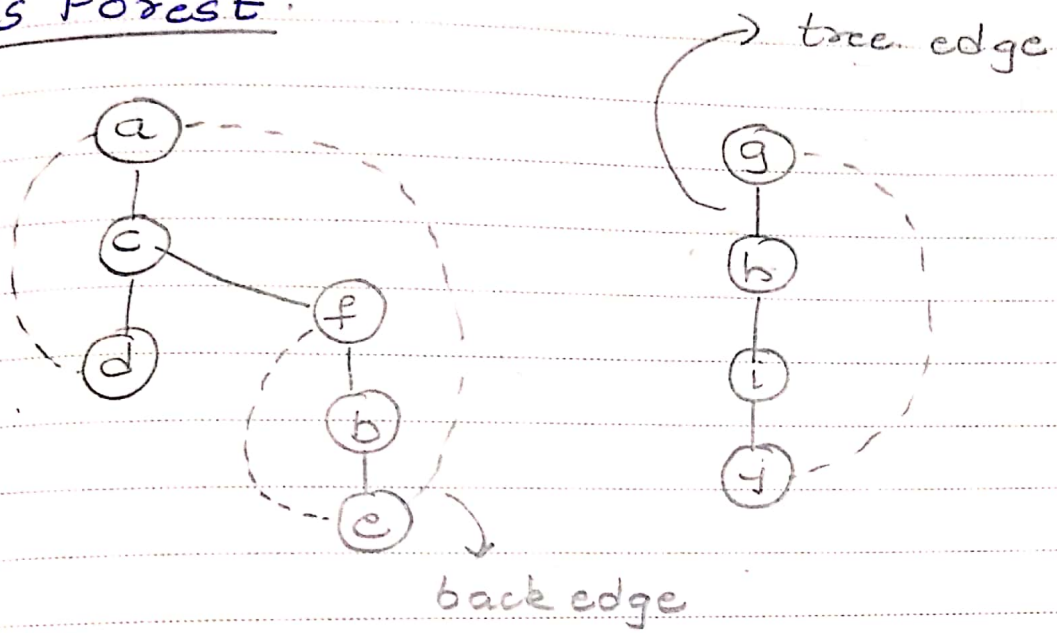
Breadth First Search: S A B C D E F G

Eg 2)



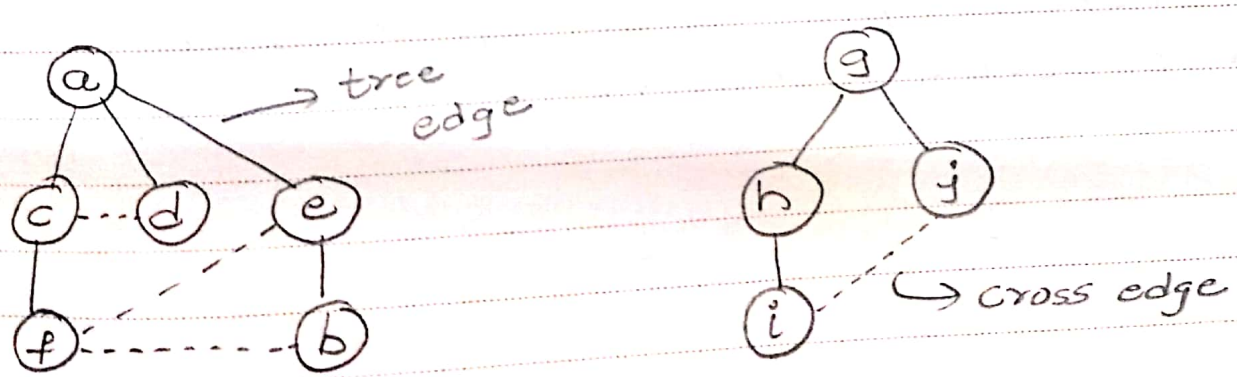
PAGE NO. :
DATE : / /

DFS Forest:



Traversal: a c d f b e g h i j

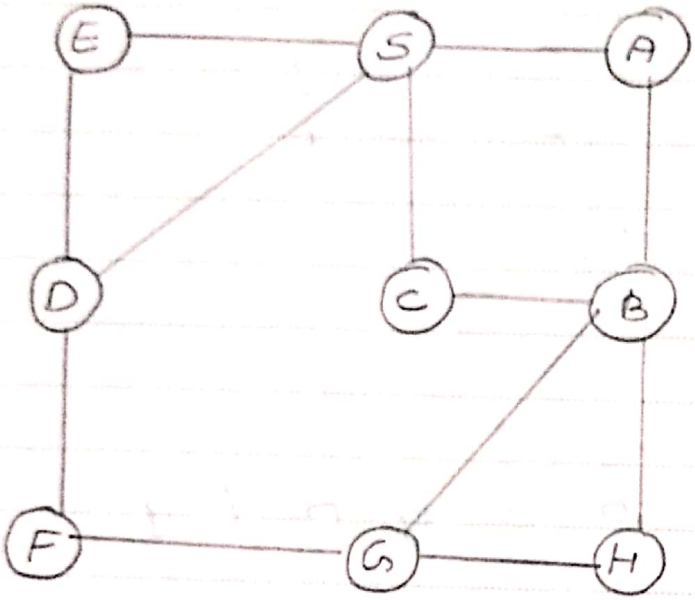
BFS Forest:



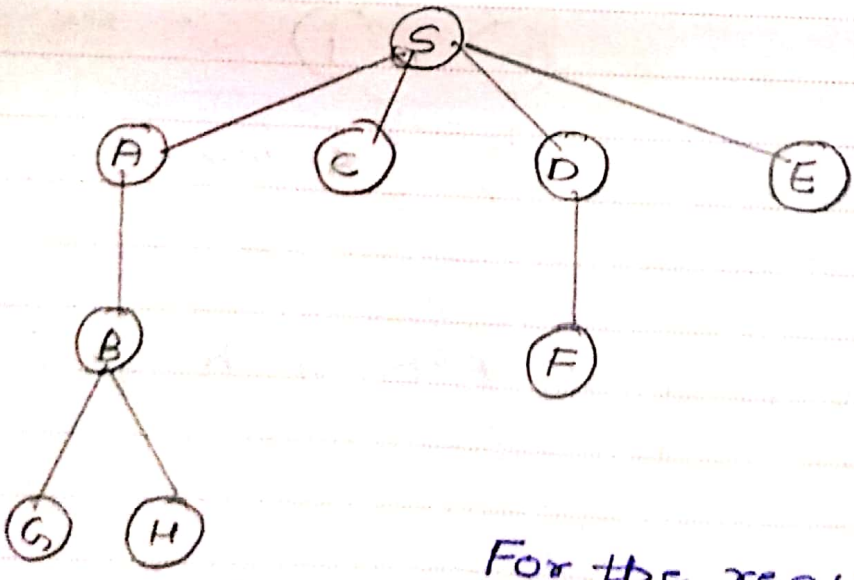
Traversal: a c d e f b g h j i

PAGE NO.:
DATE: / /

Draw a shortest path tree for the given graph, from S.



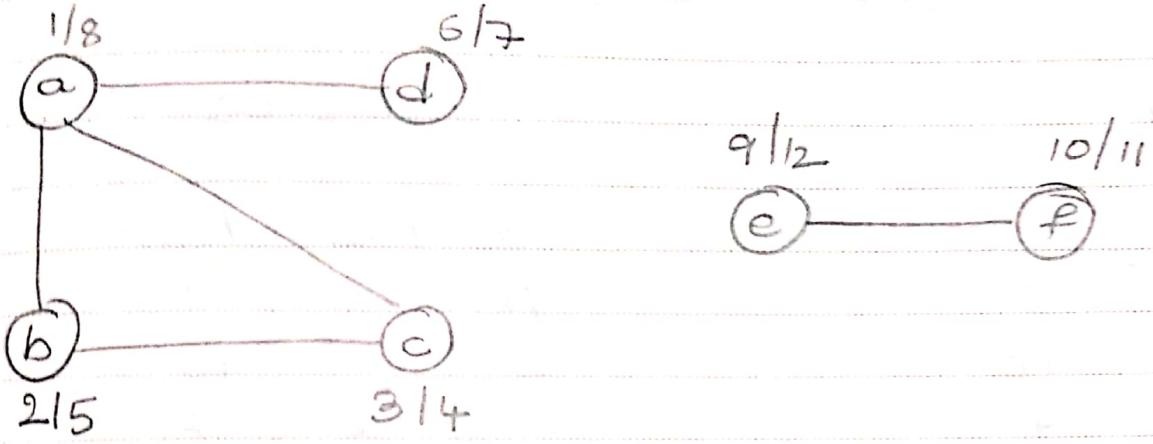
We can apply BFS traversal to obtain the shortest path tree. BFS creates a tree with shortest path from given source vertex to every other vertex.



For the reason that graph has no weighted edges. Or all are of same weights.

PAGE NO. :
DATE : / /

DFS Ordering:



Lemma: For any vertices u, v the intervals [pre(u), post(u)] and [pre(v) and post(v)] are either nested or disjoint.

Nested:

Disjoint:

Interleaved is not possible.

Eg: (1, 8) & (6, 7) are nested

(2,5) & (6, 7) are disjoint

PAGE NO. :
DATE : / /

Eg:- Which of the following tables is not a valid set of pre- & post-orders?

Table 01

v	Pre	Post
A	1	8
B	9	10
C	3	4
D	2	7
E	5	6

Table 02:

v	Pre	Post
A	1	9
B	8	10
C	2	7
D	3	6
E	4	5

Table 02, as justified by lemma.

interleaved →