NATIONAL INSTITUTE OF TECHNOLOGY SRINAGAR,
HAZRATBAL-190006, JAMMU AND KASHMIR
DEPARTMENT OF CSE
B. Tech (CSE)
CSE 601, Artificial Intelligence.

Assignment 1(Searching Strategies)

Q1. Write the algorithm and show the breadth first search traversal (Consider "a" as the source node) of the graph given in Fig. 1
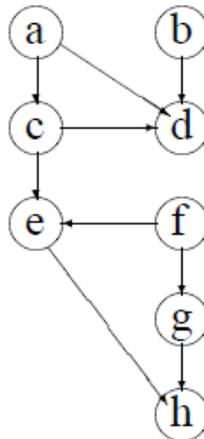

Fig.1.

Q2. Write the algorithm and show the parenthesis structure of the depth first search (Consider "a" as the source node) of the graph given in Fig. 2. Discuss all type of edges in the DFS tree.

  i). Given a digraph $G = (V, E)$, consider any DFS forest of G and consider any edge $(u, v) \in E$. If this edge is tree, forward or cross edge, then $f[u] > f[v]$. If the edge is back edge then $f[u] \leq f[v]$.

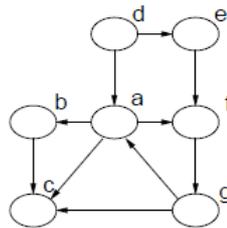 ii). Prove that G has a cycle if and only if the DFS forest has a back edge.

Fig.2.

Q3. Describe 4-queens problem with all possible states. Write an algorithm using Back-tracking to solve this problem. Draw the state space diagram.