JAYPEE UNIVERSITY OF INFORMATION TECHNOLOGY, WAKNAGHAT

TEST -2 EXAMINATION- October 2019

B.Tech (BI) V Semester

COURSE CODE: 10B11CI411

MAX. MARKS: 25

COURSE NAME: Fundamentals of Algorithms

COURSE CREDITS: 04

MAX. TIME: 1 Hr 30 Min

Note: *All questions are compulsory. Carrying of mobile phone during examinations will be treated as case of unfair means.*

1. Describe the procedure of insertion and search in a skip list. [Marks 3]

2. Perform depth-first search on the following graph; whenever there's a choice of vertices, pick the one that is alphabetically first. Classify each edge as a tree edge, forward edge, back edge, or cross edge, and give the pre and post number of each vertex. [Marks 3+4]
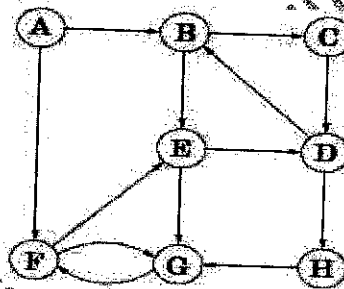
3. Trace the quick sort algorithm to sort the following list of numbers (mention pivot of your choice in every partition). {8, 20, 9, 4, 15, 10, 7, 22, 3, 12}

[Marks 4]

4. Write the properties of red black tree? Construct a red black tree for following numbers: {6, 7, 9, 4, 12, 13, 10, 5, 20, 3, 14}.

[Marks 2+4]

5. Explain counting sort algorithm and its complexity.

[Marks 3+2]