Seat Number: - _____

Duration: $2^{1/2}$ Hrs | H221A23DAA | Marks: - 75

Note: - 1) All questions are Compulsory.
2) Figures to the right indicate maximum marks.

Q.1. Attempt the following: (Any four) **(20M)**

1) State and explain the asymptotic notations used in analysis of algorithms. CO1(R)
2) What is algorithm? What is the need to analysis the algorithms? CO1(R)
3) How to calculate the time complexity? Explain with example. CO1(R)
4) Define the following terms.. CO1(R)
   a) Path b) Siblings c) Degree of a node d) internal node
5) What is AVL tree? Explain with example. CO2(R)
6) Write short note on threaded binary tree? CO2(R)

Q.2. Attempt the following: (Any four) **(20M)**

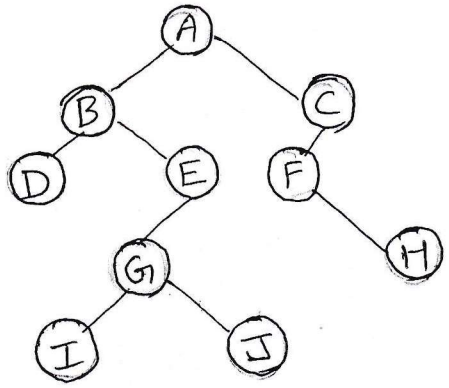
1) Explain the types of analysis. CO1(U)
2) What are the properties of asymptotic notations? CO1(R)
3) Write an algorithm for searching an element in binary tree. CO3(R)
4) Write a for building expression tree from postfix expression. CO3(R)
5) Write an algorithm for finding maximum element in binary search tree. CO3(R)
6) Define following term: CO2(R)
   a) graph b) Parallel edges c) Degree of vertex d) directed graph

Q.3. Attempt the following: (Any four) **(20M)**

1) Explain longest common subsequence. CO4(U)
2) Explain Bellman Ford algorithm with the help of example. CO3(U)
3) Explain the various algorithm design & technique. CO1(U)
4) Describe classification of algorithm in detail. CO3(R)
5) Explain properties of greedy algorithm. CO4(U)
6) Explain Haftman coding algorithm with example. CO4(U)

Q.4. Attempt the following: (Any five) **(15M)**

1) What are the graph traversal technique? Explain any one. CO2(R)
2) Write an algorithm for Topological sort. CO3(R)
3) What are the advantages & disadvantages of divide and conquer technique? CO4(R)
4) What is dynamic programming? Explain with the help of example. CO4(R)
5) Write down the order in which following tree will be traversed. CO3(R)



6) Explain shortest path algorithm with example. CO4(U)

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