

Indian Institute of Technology Jammu
Computer Science & Engineering
Class Test - I

CSC004P1M : Data Organization and Retrieval

Max. Marks: 45

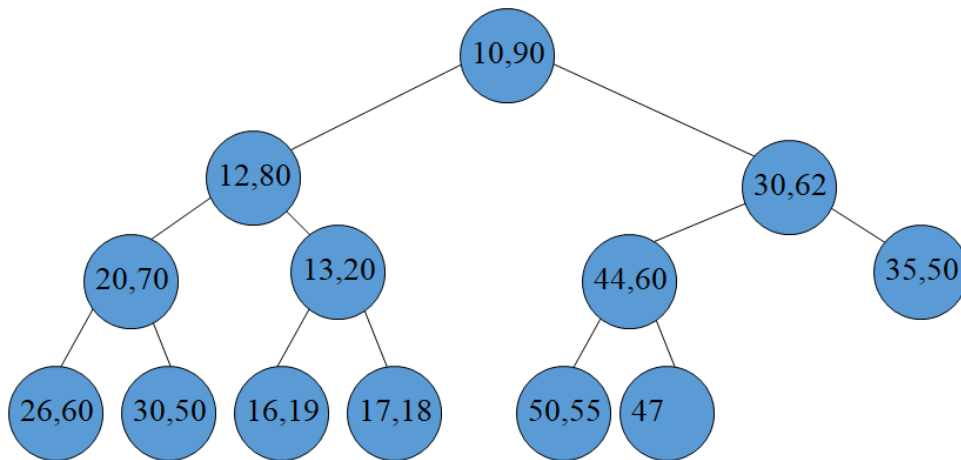
Time: 40 + 10 = 50 minutes

Instructions: This exam is open book but not open discussion.

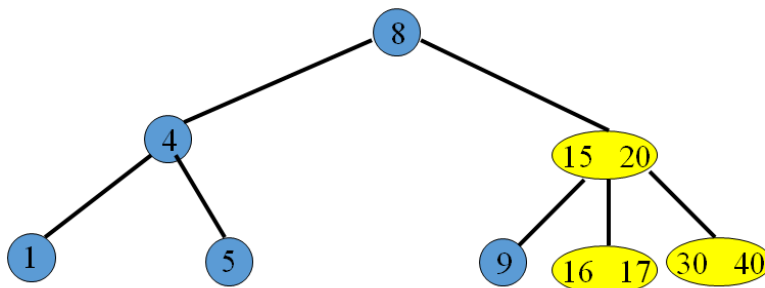
Answer all questions

Q1. [3 + 3 marks] Consider an interval heap of n elements where $n > 2$. What is the time complexity of finding (**not removing**) the second largest element ? What is the time complexity of removing the second largest element ?

Q2. [15 marks] Consider the following interval heap and insert a number N . The number N is derived from the **last two digits of your roll number** (Eg. If your roll number is 2021PCT1069, then insert $N = 69$). You need to draw intermediate diagrams and explain steps to indicate the insertion of node N . **No need to write any pseudocode / algorithm.**



Q3. [15 marks] Delete the key 4 from the following B-Tree of order 3. You need to draw intermediate diagrams and explain steps to indicate the deletion of key 4. **No need to write any pseudocode / algorithm.**



Q4. [9 marks] Give one example data structure and justification for each of the following memory allocation schemes:

- Contiguous
- Linked
- Indexed