17636

16117

3 Hours / 100 Marks   Seat No. [   ]

Instructions – (1) All Questions are *Compulsory*.

(2) Answer each next main Question on a new page.

(3) Figures to the right indicate full marks.

(4) Assume suitable data, if necessary.

(5) Mobile Phone, Pager and any other Electronic Communication devices are not permissible in Examination Hall.

Marks

1.   **Attempt any FIVE of the following:**   **20**

a) What is Algorithm? Give example.

b) What is meant by average case analysis?

c) Describe divide and conquer strategy.

d) Mention the Greedy methods of dynamic programming also explain why it is called as Greedy?

e) What is graph? How the graphs are represented in different ways?

f) What is meant by topological sorting? Write an algorithm for the same.

g) Describe about minimum spanning tree. Give example.

Marks

2. Attempt any TWO of the following: **16**

     a) Describe the objective of time analysis of algorithm and also explain big-oh notation.

     b) Explain quick sort algorithm with suitable example.

     c) Describe the following terms:

         (i) vertex

         (ii) edge

         (iii) weighted graph

         (iv) indegree

3. Attempt any TWO of the following: **16**

     a) What is recursion? Explain recursion with suitable example.

     b) Sort the following numbers using radix sort. Show passes
217, 212, 200, 198, 371, 172, 342, 297, 266

     c) Write an algorithm for Breadth first search.

4. Attempt any TWO of the following: **16**

     a) Describe sorting and searching. List down examples for sorting and searching.

     b) Explain Merge sort algorithm with example.

     c) Write an algorithm for Dijktra algorithm.

5. Attempt any TWO of the following: **16**

     a) Describe counting sort with suitable example.

     b) Explain job scheduling.

     c) Explain knap-sack programming.

Marks

6. **Attempt any <u>TWO</u> of the following:** 16

a) Write and explain bubble sort algorithm. Give example showing all passes?

b) Explain process scheduling.

c) Find the minimum spanning tree for the following graph using Kruskal's algorithm?

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