Avinashilingam Institute for Home Science and Higher Education for Women
Coimbatore – 641 043

Master's Degree Examination – November 2017
III Semester

Class : II PG **Time: 3 hours**
Major : Computer Application **Max. Marks: 60**

12MCAC16 Design and Analysis of Algorithms

Part A **10 x 1/2 = 5**

Choose the correct answer

1. Which complexity is needed for the memory to run to compilation?

a. Space b. Time c. Both a and b d. None of the above

2. What is meant as an algorithm that calls itself?

a. Function b. Procedure c. Selection d. Recursive

3. Whether the greedy method controls abstraction for the subset paradigm?

a. No b. Yes c. partial d. Optimal

4. What is a binary tree in which the external nodes represent messages?

a. Encode Tree b. Decode Tree c. Sort Tree d. Merge Tree

5. Which method is used to find a solution from a sequence of decisions?

a. Static b. Traversal c. Dynamic d. Backtracking

6. In which schedule, the processing of a task on any processor is not terminated until the task completes?

a. Job b. Round-Robin c. Preemptive d. Non-preemptive

7. Check which of the following are binary tree traversal?

a. LDR b. LRD c. RDL d. All the above

8. How D-search-like state space search will be called?

a. BFS b. DFS c. LIFO d. FIFO

9. Which complexity is needed to find the total cost of a parallel algorithm?

a. Time b. Space c. Both a and b d. None of the above

10. What are the data structures that can be commonly used in parallel programming?

a. Linked List b. Arrays c. Hypercube Network d. All the above

Part B 5 x 4 = 20

Answer ALL questions

Each answer should not exceed 200 words or one page

11.a. Write short notes on space complexity?

(Or)

11.b. Illustrate the concept of quick sort.

12.a. How is a maximum profit obtained by using Knapsack problem?

(Or)

12.b. Describe the concept of optimal storage on tapes?

13.a. What is a multistage graph? Write the pseudocode corresponding to forward and backward approach?

(Or)

13.b. Explain the 0/1 Knapsack problem with an algorithm?

14.a. What is meant by BFS? Write the pseudocode for BFS?

(Or)

14.b. Construct an example graph and write an algorithm for finding m-colorings and state space tree?

15.a. Discuss the implementation of matrix multiplication on mesh and hypercube network?

(Or)

15.b. How the general arithmetic expressions can be evaluated using simultaneous substitution parallel method?

Part C 5 x 7 = 35

Answer ALL questions

Each answer should not exceed 600 words or three pages

16.a. Discuss in detail about the asymptotic notation.

(Or)

16.b. Explain the concept of merge sort.

17.a. How to obtain a minimum-cost spanning tree using Prim's algorithm? Explain.

(Or)

17.b. Discuss on several stages of Kruskal's algorithm and give an example?

18.a. Explain the concept of optimal binary search trees?

(Or)

18.b. Illustrate the travelling salesperson problem and test it using suitable data?

19.a. How a new queen be placed? Elaborate it by providing all solutions to the n-queens problem?

(Or)

19.b. Define a Hamiltonian cycle? Discuss the tour of Hamiltonian cycle with the necessary algorithm?

20.a. Discuss the various models of parallel algorithm?

(Or)

20.b. How the parallel algorithm can be analysed? Explain?

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