Reg. No. : | | | | | | | | | | |

Question Paper Code: 55804

B.E. / B.Tech. DEGREE EXAMINATION, DEC 2020

Fifth Semester

Information Technology

15UIT504- ANALYSIS AND DESIGN OF ALGORITHMS

(Regulation 2015)

Duration: One hour Maximum: 30 Marks

PART A - (6 x 1 = 6 Marks)

(Answer any six of the following questions)

1. The complexity of linear search algorithm is CO1- R

   (a) n (b) log n (c) n2 (d) n log n

2. Two main measures for the efficiency of an algorithm are CO1- R

   (a) Processor and memory (b) Complexity and capacity

   (c) Time and space (d) Data and space

3. Which of the following algorithm design technique is used in the quick sort algorithm? CO2- R

   (a) Dynamic programming (b) Backtracking

   (c) Divide-and-conquer (d) Greedy method

4. The time complexity of a quick sort algorithm which makes use of median, found by an O(n) algorithm, as pivot element is CO2- R

   (a) n^2 (b) nlogn (c) nloglogn (d) n

5. We use dynamic programming approach when CO3- R

   (a) It provides optimal solution

   (b) The solution has optimal substructure

   (c) The given problem can be reduced to the 3-SAT problem

   (d) It's faster than Greedy

6. What kind of architecture does TOGAF? CO3- R

(a) Business, information, technology and application

(b) Functional, data, technology and business

(c) Technology, data, application and business

(d) Application, data, infrastructure and business

7. The Knapsack problem where the objective function is to minimize the profit is CO4- R

(a) Greedy (b) Dynamic 0 / 1 (c) Back tracking (d) Branch & Bound 0/1

8. How many nodes are there in a full state space tree with n = 6? CO4- R

(a) 65 (b) 64 (c) 63 (d) 32

9. Which MIMD systems are best scalable with respect to the number of processors? CO5 R

(a) Distributed memory computers (b) ccNUMA systems

(c) nccNUMA systems (d) Symmetric multiprocessors

10. Points where process communicate with each other to ensure that parallel algorithm works correctly and effectively are called as CO5 R

(a) Static points (b) Dynamic points

(c) Interaction points (d) None of these

PART – B (3 x 8= 24 Marks)

(Answer any three of the following questions)

11. Examine the efficiency of factorial of some number n with the help of General plan. CO1- Ana (8)

12. Design a binary tree for the following nodes **a, b, c, d, e, f, g, h, i, j** and also apply various traversal techniques for the designed tree with its explanation CO2- App (8)

13. Write an algorithm to compute the binomial coefficient with example CO3 -U (8)

14. Let w={5,7,10,15,20} and m=35.Compute all possible subset of w whose sum is equivalent to m. Draw the portion of state space tree for this problem. CO4- App (8)

15. Explain how pointer doubling problem to perform the addition of two numbers using complete binary tree CO5- U (8)