

www.FirstRanker.com

www.FirstRanker.com

(DMCA204)

Total No. of Questions :18] [Total No. of Pages : 02 M.C.A. DEGREE EXAMINATION, MAY- 2018 Second Year

COMPUTER ALGORITHMS

Time :3 Hours

Maximum Marks :70

$\frac{\text{SECTION} - A}{\text{Answer any three questions.}} (3 \times 15 = 45)$

- **Q1**) a) Explain the properties of an algorithm with an example.
 - b) Explain about Worst case, best case and Average Case Complexity.
- **Q2)** Discuss about quick sort algorithm with suitable example and derive its complexities.
- *Q3)* Solve the following job sequence problem. n = 4, $(p_1, p_2, p_3, p_4) = (100, 10, 15, 27)$, $(d_1, d_2, d_3, d_4) = (2, 1, 2, 1)$. Find the optimal Sequence and profit.
- **Q4)** Explain Backtracking Method. What is N-Queens Problem? Give solution of 4-Queens Problem using backtracking Method.
- **Q5)** Explain how branch and bound technique differs from back tracking. Solve the Travelling Salesman problem using branch and bound algorithms.

<u>SECTION - B</u>

Answer any five questions from the following.

 $(5 \times 4 = 20)$

- Q6) Briefly explain about amortized analysis of algorithm.
- Q7) What is Divide and Conquer Technique? Give the use of it for binary Searching method.
- **Q8)** State and explain about quick hull problem.
- **Q9)** Constrict Huffman code for the following data: p(A) = 0.1 = p (B), p(C) = 0.3, p(D) = 0.14, p(E) = 0.12 and p(F) = 0.24. Encode the text CAD and Decode 10011011011101.
- **Q10)** Explain Chained Matrix Multiplication with example.

www.FirstRanker.com



www.FirstRanker.com

Q11) Solve the all pair shortest paths problem for the digraph with weight matrix.

0	∞	3	∞	
2	0	∞	∞	
∞	7	0	1	
6	∞	∞	0	

Q12) Explain the Graph – coloring problem. And draw the state space tree for m=3colors n=4 vertices graph.

Q13) Solve the knapsack problem by branch and bound technique.

SECTION - C Answer all questions. $(5 \times 1 = 5)$

Q14) Define Big (O) notation.

Q15)What is spanning tree?

Q16)What is meant by optimal binary search tree? Q17) Define backtracking. Q18) State subset sum problem.

www.FirstRanker.com