



R18 Regulation

Subject code: 2P5FD

TKR COLLEGE OF ENGINEERING AND TECHNOLOGY

(Autonomous, Accredited by NAAC with 'A' Grade)

B.Tech V Semester Regular Examinations, February 2021

DESIGN AND ANALYSIS OF ALGORITHMS

(Information Technology)

Maximum Marks: 70

Date: 24.02.2021 Duration: 3 hours

- Note:**
1. This question paper contains two parts A and B.
 2. Part A is compulsory which carries 20 marks. Answer all questions in Part A.
 3. Part B consists of 5 Units. Answer any one full question from each unit.
 4. Each question carries 10 marks and may have a, b, c, d as sub questions.

Part-A

All the following questions carry equal marks

(10x2M=20 Marks)

- 1 What is a recurrence relation?
- 2 Write short notes on linear search.
- 3 State the need for finding minimum spanning tree?
- 4 What is graph coloring?
- 5 Define kruskal's algorithm.
- 6 What is the single source shortest path problem?
- 7 What is Dynamic programming?
- 8 List the uses of TSP.
- 9 What is NP class?
- 10 Differentiate FIFO and LIFO.

Part-B

Answer All the following questions.

(10M X 5=50Marks)

- 11 What is Divide and Conquer Algorithm? Explain with suitable examples. (10M)
OR
- 12 Explain Strassen's matrix multiplication with example.(10M)
- 13 Discuss the backtracking solution to solve 8-Queens problem. (10M)
OR
- 14 What is Hamiltonian problem? Explain with an example using backtracking?(10M)
- 15 Explain in detail about Single source shortest path problem with example. (10M)
OR
- 16 With suitable examples, explain in detail about the importance of Job sequencing with deadlines.(10M)
- 17 How dynamic programming is used to solve Knapsack problem? Explain in detail.(10M)
OR
- 18 Explain all pairs shortest paths problem in detail with an example.(10M)
- 19 A. Explain 3CNF satisfiability problem (5M)
B. Explain Cook's theorem. (5M)
OR
- 20 Apply Branch and Bound Technique to solve travelling salesperson problem.(10M)