Code No.: AI405PC

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CMR ENGINEERING COLLEGE: : HYDERABAD
UGC AUTONOMOUS
II–B.TECH–II–Semester End Examinations (Supply) - February- 2023
DESIGN ANALYSIS OF ALGORITHMS
(CSM)

[Time: 3 Hours]   [Max. Marks: 70]

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

PART-A   (20 Marks)

1. a)	Define time complexity.	[2M]
b)	What is Recursive algorithm?	[2M]
c)	Define union operation.	[2M]
d)	Write Disjoint set operations.	[2M]
e)	Define Breadth First Search.	[2M]
f)	What is a Depth First Search.	[2M]
g)	Define Greedy knapsack problem.	[2M]
h)	Define Minimum cost spanning trees.	[2M]
i)	Expalin Travelling Sale Person problem.	[2M]
j)	List out the NP-Hard problems.	[2M]

PART-B   (50 Marks)

2. Explain the control abstraction of divide and conquer.   [10M]

OR

3. Illustrate an algorithm for searching an element using Binary Search with an example.   [10M]

4. Explain N-Queens problem using back tracking techniques.   [10M]

OR

5. Elaborate Union and Find algorithms.   [10M]

6. Explain reliability design.   [10M]

OR

7. Classify All pairs shortest path problem.   [10M]
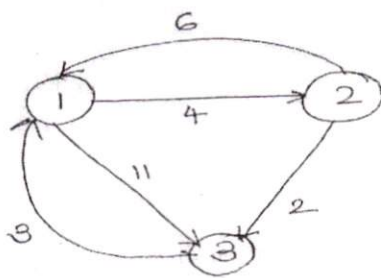
Example digraph.

8. Solve the job sequencing problem given n=4 (P_1, P_2, P_3, P_4)= (100, 10, 15, 27) and [10M] (d_1, d_2, d_3, d_4)=(2,1,2,1).

OR

9. Elaborate single source shortest path problem with an example. [10M]

10. Explain FIFO Branch and Bound technique. [10M]

OR

11. Describe COOK's theorem. [10M]

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