| CRM08 | Rev 1.16 | AI | 23/05/25 |
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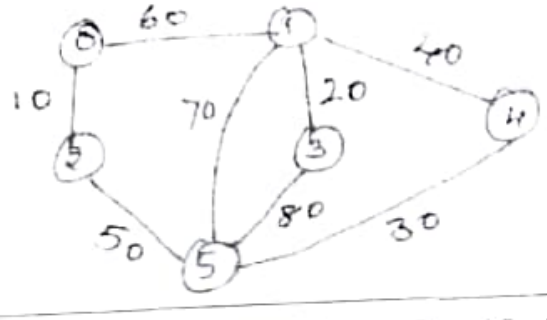
# CONTINUOUS INTERNAL EVALUATION - 2

| Dept: AI/CD/CS | Sem / Div: 4 | Sub: Analysis & Desing of Algorithms | S Code: BCS401 |
|---|---|---|---|
| Date:28/5/2025 | Time: 9:30-11:00 | Max Marks: 50 | Elective: N |

Note: Answer any 2 full questions, choosing one full question from each part.

| QN | | Questions | Marks | RBT | CO's |
|---|---|---|---|---|---|
| | | **PART A** | | | |
| 1 | a | Explain string matching Horspool's algorithm. Apply the algorithm to search for the pattern BARBER in a text JIM SAW ME IN A BARBER SHOP | 10 | L3 | CO4 |
| | b | Apply Kruskal algorithm for given graph.   | 10 | L3 | CO4 |
| | c | Solve coin row problem for {5, 1, 2, 10, 6, 2} | 5 | L3 | CO3 |
| | | **OR** | | | |
| 2 | a | Apply single source shortest path problem assuming vertex 'a' as source.  | 10 | L3 | CO4 |
| | b | Construct Huffman Tree for document contains letter A | 10 | L3 | CO4 |

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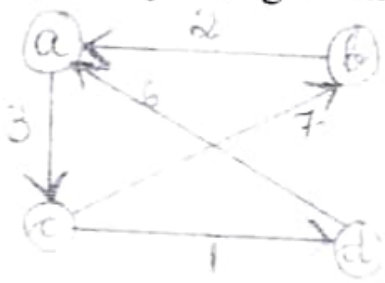
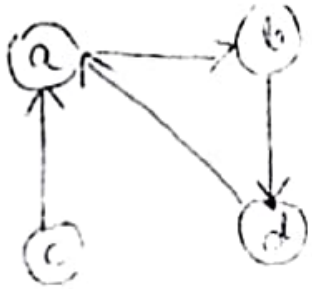
|---|---|---|---|---|---|
| | | to E with frequencies A:22, B:13, C:18, D:16, E:31<br>i) Encode: CAB, BAD<br>ii) Decode: 110011, 1000110001 | | | |
| | c | Apply Floyd's algorithm for the given graph.<br>  <br> | 5 | L3 | CO3 |
| | | **PART B** | | | |
| 3 | a | Write a note on P,NP,NP Complete & NP hard problems. | 10 | L2 | CO5 |
| | b | Apply backtracking method to solve sum of subset problem for the instance d=50, S={10,20,30,40}. Give all possible solution with state space tree. | 10 | L3 | CO6 |
| | c | Apply dynamic programming to solve knapsack.<br>Given n=4, M=5, w={2,1,3,2} & profit={8,6,16,11}. | 5 | L3 | CO3 |
| | | **OR** | | | |
| 4 | a | Explain N Queen's Problem using backtracking to solve 4-Queen problem. | 10 | L2 | CO5 |
| | b | Apply branch and bound method to solve knapsack.<br>Given:n=4,M=10,w={4,7,5,3} & Values={40,42,25,12} | 10 | L3 | CO6 |
| | c | Apply warshall's algorithm to find transitive closure for given graph.<br>  <br> | 5 | L3 | CO3 |

Prepared by: Prof. Abhishek Kumar K

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