

Algorithms Design and Analysis [ETCS-301]

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Even numbered students will attempt even numbered questions and odd numbered students will attempt odd numbered questions.

- Q1. Prove correctness of Huffman Code Algorithm
- Q2. Prove the correctness of Bellman Ford algorithm for single source shortest path.
- Q3. Explain Dijkstra algorithm with the help of an example.
- Q4. Explain Kruskal algorithm with the help of an example.



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- Q1. Prove the correctness of Dijkstra's algorithm for single source shortest path.
- Q2. Prove the correctness of Kruskal's algorithm for minimum spanning tree.
- Q3. Given ten activities along with their start and finish time as $(A_1, 5, 6)$, $(A_2, 3, 6)$, $(A_3, 1, 4)$, $(A_4, 5, 7)$, $(A_5, 5, 8)$, $(A_6, 7, 10)$, $(A_7, 8, 9)$, $(A_8, 9, 11)$, $(A_9, 8, 11)$, $(A_{10}, 10, 12)$. Compute a schedule where the largest numbers of activities take place.
- Q4. Find optimal scheduling and total incurred penalty for following given problem: $a_i = (1, 2, 3, 4, 5, 6, 7)$, $d_i = (4, 2, 4, 3, 1, 4, 6)$, $w_i = (70, 60, 50, 40, 30, 20, 10)$.



Thank you

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