ourdiu.com | Shared by Shafiur Rahman Shafim (242)

Daffodil International University
Department of Software Engineering
Faculty of Science & Information Technology
ID & Section:
Spring 2026; Course Code & Title: SE214, Algorithm Design & Analysis
Time: 35 Minutes **Marks: 15**

1) A data-analytics company is developing a system that compresses user-activity logs before storing them in the cloud to reduce storage costs. One part of the log contains the following event codes, each represented by a single character: Event with their frequency is : A-45, B-9, C-6, D-13, E-12-, F- 5.
   - Construct the **Huffman Tree** for the given frequencies.
   - Determine the **Huffman Code** for each event (A, B, C, D, E).
   - Calculate the **total number of bits required** to encode the logs using your Huffman codes.
   - Compare it with a **fixed-length encoding** and compute how many bits are saved. 8

2) Given Capacity of the sack: 10 kg, Calculate the maximum profit with a greedy approach. 4

Object	1	2	3	4	5	6
Profit	5	10	15	7	8	9
Weight	1	3	5	4	1	3

ourdiu.com

3) Total Amount =36, available denominator {1,5,10,20}, Find the minimum number of coins with greedy solution. 3