

Assignment 2

1st + 2nd Semester (A): Fall-2025
Advanced Analysis of Algorithms
Issue Date: 20th DEC, 2025

MS CS/IT
Maximum Marks: 10
Due Date: 28th DEC, 2025

Student Name:

Roll No:

Q.1	Given the following characters and their frequencies: <table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th style="text-align: left; padding-bottom: 5px;">C5 CLO3 PLO3</th><th style="text-align: left; padding-bottom: 5px;">Character</th><th style="text-align: left; padding-bottom: 5px;">Frequency</th></tr> </thead> <tbody> <tr> <td></td><td>A</td><td>4</td></tr> <tr> <td></td><td>B</td><td>7</td></tr> <tr> <td></td><td>C</td><td>10</td></tr> <tr> <td></td><td>D</td><td>15</td></tr> <tr> <td></td><td>E</td><td>20</td></tr> <tr> <td></td><td>F</td><td>45</td></tr> </tbody> </table>		C5 CLO3 PLO3	Character	Frequency		A	4		B	7		C	10		D	15		E	20		F	45	2*5 =10
C5 CLO3 PLO3	Character	Frequency																						
	A	4																						
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	A. Construct the Huffman Tree step by step. B. Generate the Huffman codes for each character. C. Verify that the generated codes satisfy the prefix property . D. Calculate the total number of bits required using Huffman encoding. E. Compare the result with fixed-length encoding and comment on the compression achieved.																							