



Daffodil International University
Faculty of Science & Information Technology
Department of Computer Science & Engineering
64-K, CT-03, Spring 2026
Course Code: CSE411, Course Title: Computer Graphics

Time: 45 Minutes

Marks: 15

Answer ALL Questions [Optional]

[The figures in the right margin indicate the full marks and corresponding course outcomes. All portions of each question must be answered sequentially.]

1.	<table><tr><td>10</td><td>10</td><td>10</td><td>10</td><td>10</td><td>10</td><td>12</td><td>12</td><td>12</td><td>12</td><td>15</td><td>15</td></tr><tr><td>10</td><td>10</td><td>10</td><td>10</td><td>10</td><td>10</td><td>12</td><td>12</td><td>12</td><td>12</td><td>15</td><td>15</td></tr><tr><td>10</td><td>10</td><td>10</td><td>10</td><td>10</td><td>10</td><td>12</td><td>12</td><td>12</td><td>12</td><td>15</td><td>15</td></tr><tr><td>10</td><td>10</td><td>10</td><td>10</td><td>10</td><td>10</td><td>12</td><td>12</td><td>12</td><td>12</td><td>15</td><td>15</td></tr><tr><td>20</td><td>20</td><td>20</td><td>20</td><td>20</td><td>20</td><td>25</td><td>25</td><td>25</td><td>25</td><td>30</td><td>30</td></tr><tr><td>20</td><td>20</td><td>20</td><td>20</td><td>20</td><td>20</td><td>25</td><td>25</td><td>25</td><td>25</td><td>30</td><td>30</td></tr><tr><td>20</td><td>20</td><td>20</td><td>20</td><td>20</td><td>20</td><td>25</td><td>25</td><td>25</td><td>25</td><td>30</td><td>30</td></tr><tr><td>35</td><td>35</td><td>35</td><td>35</td><td>35</td><td>35</td><td>40</td><td>40</td><td>40</td><td>40</td><td>45</td><td>50</td></tr><tr><td>35</td><td>35</td><td>35</td><td>35</td><td>35</td><td>35</td><td>40</td><td>40</td><td>40</td><td>40</td><td>45</td><td>50</td></tr><tr><td>35</td><td>35</td><td>35</td><td>35</td><td>35</td><td>35</td><td>40</td><td>40</td><td>40</td><td>40</td><td>45</td><td>50</td></tr></table>	10	10	10	10	10	10	12	12	12	12	15	15	10	10	10	10	10	10	12	12	12	12	15	15	10	10	10	10	10	10	12	12	12	12	15	15	10	10	10	10	10	10	12	12	12	12	15	15	20	20	20	20	20	20	25	25	25	25	30	30	20	20	20	20	20	20	25	25	25	25	30	30	20	20	20	20	20	20	25	25	25	25	30	30	35	35	35	35	35	35	40	40	40	40	45	50	35	35	35	35	35	35	40	40	40	40	45	50	35	35	35	35	35	35	40	40	40	40	45	50		
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Given a 10×12 grayscale image. Each pixel is represented using a 14-bit image.																																																																																																																											
a.	Build the Huffman Tree step by step (show intermediate merging) and assign Huffman codes to each pixel value.	[6]	CO2																																																																																																																								
b.	Compute the following: i) Original size ii) Compressed size iii) Compression Ratio iv) Average bits per pixel v) Relative Redundancy and vi) Savings	[3]	CO2																																																																																																																								
2.	After applying DCT on an image block, the coefficients are: [64,20,10,5,2,1,0,0] and Quantization values are: [8,5,10,10,5,5,10,10]																																																																																																																										
a.	Perform quantization on the given coefficients.	[3]	CO3																																																																																																																								
b.	Which step in JPEG is lossy and why?	[2]	CO3																																																																																																																								
c.	Why is Huffman coding considered lossless?	[1]	CO1																																																																																																																								