

Programme Name & Branch : 5 year Integrated M. Tech& MIC/MID
 Course Code and Course Name : CSI3019 - Advanced Data Compression Techniques
 Faculty Name(s) : Dr. N.Balaji
 Class Number(s) : VL2024250101860
 Date of Examination : 18-10-2024
 Exam Duration : 90 minutes Maximum Marks:50

General instruction(s):

- Answer All Questions
- M- Max mark; CO – Course Outcome; BL – Blooms Taxonomy Level (1 – Remember, 2 – Understand, 3 – Apply, 4 – Analyse, 5 – Evaluate, 6 – Create)
- Course Outcomes (Type the CO statements covered in this question paper. Use the CO number as per the syllabus copy
 CO3: Understand the most common file formats for image, sound and video
 CO4: Develop a reasonably sophisticated data compression application.
 CO5: Select methods and techniques appropriate for the task

Q.No	Question	Marks										
1.	Arun wants to send some data to vijay that data contains the odd numbers between 20 to 30 and the even numbers between 31 to 45. But all the data cannot be transferred in single packet so Arun performed pre-processing step to reduce the data size and encoded the data using second extension option. Provide the pre-processing steps and encoded data for the above inputs.	10										
2.	<p>Encode the following message using the LZW algorithm using the mentioned initial dictionary and decode the constructed codes and check whether it is generating the original message.</p> <p>Input: "ababc abb aba bcc"</p> <table border="1" style="display: inline-table; vertical-align: top;"> <thead> <tr> <th>Char</th><th>Index</th></tr> </thead> <tbody> <tr> <td>A</td><td>1</td></tr> <tr> <td>B</td><td>2</td></tr> <tr> <td>C</td><td>3</td></tr> <tr> <td>Space</td><td>4</td></tr> </tbody> </table>	Char	Index	A	1	B	2	C	3	Space	4	10
Char	Index											
A	1											
B	2											
C	3											
Space	4											
3.	<p>a) Encode the following word in a step-by-step manner using the adaptive Huffman code.</p> <p>"rotator"</p> <p>b) Evaluate the compression ratio attained in the compression of the above text.</p>	8 2										
4.	a) Consider the problem of scalar quantization in lossy networks, where some bits or packet might be dropped or corrupted. Can you design a scalar quantizer that is robust to losses, while maintaining good compression performance and minimizing distortion?	5										

	b) The output sequence contains value from 500 to 65535. Use scalar quantization to store values using 8-bit and encode the following values 600, 6000, 16000, 26000, 36000, 46000, 56000, 65000.	5
5	Encode the following message "Summer vacation and winter vacation" using the length and distance of the longest match found in the buffer, and the literal that followed that match.	10
