VASAVI COLLEGE OF ENGINEERING (AUTONOMOUS)

IBRAHIMBAGH, HYDERABAD-31

Department of Computer Science and Engineering

#### Name of the Course: Image Processing

Quiz– 3

Name of the Faculty: C.Gireesh Date: 26/04/2024

Semester : 6 Time: 2:20-3:20PM

Section:A Academic Year:2023-24

Note: Answer all the Questions (20 Marks)

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| Q. No | Questions | Marks | BTL | CO |
| 1. | Write the equations for Ideal and Gaussian low pass filters. | 1 | 3 | 3 |
| 2. | Compute the Golomb code G4(20). | 1 | 3 | 4 |
| 3. | Calculate the entropy of an image having the following intensity distribution.   |  |  |  |  |  |  |  | | --- | --- | --- | --- | --- | --- | --- | | intensity | 0 | 1 | 2 | 3 | 4 | 5 | | Probability | 0.08 | 0.2 | 0.4 | 0.1 | 0.2 | 0.02 | | 1 | 3 | 4 |
| 4. | Draw the block diagram of image compression model. | 1 | 2 | 4 |
| 5. | Let b = 524288 and b' = 118621 denote the number of bits required to represent an image in two different coding schemes. Compute the compression ratio and relative data redundancy. | 1 | 3 | 4 |
| 6. | Convert the given RGB model image to CMY model | 1 | 2 | 5 |
| 7. | Compute the Fourier transform of the given function  f(t) = A for –W/2 ≤ t ≤ W/2  = 0 otherwise | 4 | 3 | 3 |
| 8. | Compute the arithmetic code for the message “a2a2a3a1”.   |  |  |  |  | | --- | --- | --- | --- | | Source symbol | a1 | a2 | a3 | | Probability | 0.3 | 0.4 | 0.3 | | 3 | 3 | 4 |
| 9. | Given a five-symbol source {a, b, c, d, e} with probabilities {0.1, 0.3, 0.5, 0.03, 0.07}. Compute the Huffman codes for the sources. | 4 | 2 | 4 |
| 10. | Describe the technique of intensity slicing and color coding to assign colors to monochrome images | 3 | 2 | 5 |