TRIBHUVAN UNIVERSITY
MODEL QUESTION

LEVEL:- B.Sc. Computer Science and Information Technology   FULL MARKS:- 60
SUBJECT:-CSC-363, Image Processing   PASS MARKS:- 28
TIME:- 03:00 hrs.

Candidates are required to give their answers in their own words as far as practicable.
Figures in the margin indicate full marks.

Attempt any TEN questions

1. Define digital image. How do you represent a digital image in computer?[1+5]

2. What are the properties of Fourier Transform. Given f(8)={12, 8, 3, 9, 7, 10, 12}. Compute the Hadamard Transform. [3+3]

3. What is histogram? Describe its significance in image processing. Describe the image magnification by interpolation with an example.   [1+2+3]

4. Consider a simple 4x8, 8-bit image as follows. Compress the image using Huffman Coding.

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   Also calculate average bit length after Huffman Coding.   [5+1]

5. Define pattern. Explain the block diagram for pattern recognition. [1+5]

6. What do you mean by template matching? Describe the algorithm for template matching? [1+5]

7. What is classification? Explain any two classifiers.   [1+5]

8. What do you mean by segmentation by threshold? Explain how dilation and erosion are applied in region filling and boundary extraction.   [1+5]

9. How is filtering performed in frequency domain? Discuss some of the applications of neural networks in pattern recognition. [3+3]

10 Write short Notes on   [3+3]
   a. Hopfield Nets
   b. Contrast Stretching.

11. Differentiate between   [3+3]
   a. Smoothing and Sharpening Filters
   b. Fixed-length and Variable-Length Coding