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Total No. of Pages : 02

Total No. of Questions : 08

M.Tech.(CSE Engg./E-Security) (Sem.-2)**DIGITAL IMAGE PROCESSING**

Subject Code : CS-502

M.Code : 35403

Time : 3 Hrs.

Max. Marks : 100

INSTRUCTION TO CANDIDATES :

1. Attempt any FIVE questions out of EIGHT questions.
2. Each question carries TWENTY marks.

- Q1) Define a Digital Image. What are the various steps involved in processing a digital image? Explain each step discussing its significance in detail.
- Q2) a) Describe the concept of Histogram specifications and Histogram modification for image enhancement.
- b) Discuss the pros and cons of spatial domain filtering techniques and frequency domain filtering techniques.
- Q3) a) What is the significance of Wavelet Transformations? Differentiate between Discrete and continuous Wavelet Transformation.
- b) How a two dimensional fast wavelet transformation is similar to pyramidal coding scheme? Explain.
- Q4) a) Compare the various color models used for color image processing.
- b) What are the various frequency domain filtering techniques? Compare their features. Which filter helps to completely eliminate ringing effect?
- Q5) a) What is the significance of image compression? Is there any difference between the two terms image compression and data compression? List various image compressions methods.



b) Consider the simple 4×8 , 8 bit image :

21 21 95 95 169 169 243 243

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- i. Compress the image using Huffman coding.
 - ii. Compute the compression achieved and the effectiveness of the Huffman coding.
- Q6) Define the term Image Segmentation. Give the broader categorization of various segmentation techniques. Describe the various edge linking and boundary detection techniques.
- Q7) What is the significance of representation and description in digital image processing? Describe the various representation techniques by taking suitable examples of your choice.
- Q8) What are the various decision theoretic and structural methods of object recognition? Describe by taking supportive examples wherever required.

NOTE : Disclosure of Identity by writing Mobile No. or Making of passing request on any page of Answer Sheet will lead to UMC against the Student.