H.T.No. | | | | | | | | | | |

Code No: CS2906 **GEC-R17**

M. Tech I Semester Regular Examinations, February 2018

DIGITAL IMAGE PROCESSING

(Computer Science Engineering)

Time: 3 Hours **Max. Marks: 60**

Note: Answer Any **FIVE** Questions. All Questions Carry Equal Marks.

5 × 12 = 60M

1. a) What are the components of an Image Processing System? (6M)

   b) Explain about image sampling and quantization process. (6M)

2. a) What is meant by image enhancement by point processing? Discuss any two methods in it. (6M)

   b) Prove that for continuous signal Histogram equalization results in flat histogram. (6M)

3. a) Explain about the CMY color model in detail. (6M)

   b) Explain about pseudocolor image processing. (6M)

4. a) What is meant by error tree compression? Explain the variable length coding. (6M)

   b) Draw the general compression system model and Explain? (6M)

5. a) Explain about skeletons and convex hull in detail. (6M)

   b) Illustrate with suitable examples how gradient operators used for edge detection of medical images. (6M)

6. a) In a digital image of size 600 X 450, if bits of memory is allocated per sample,

      i) How many quantization levels are possible? (3M)

      ii) What is the size of memory in kB? (3M)

   b) Demonstrate image smoothing and image sharpening. (6M)

7. a) What is thresholding? Explain about global thresholding. (6M)

   b) Explain the process of converting colors from RGB to HSI. (6M)

8. a) Apply Huffman's coding approach for the given data and calculate average length of the code. (6M)

Original source			Source reduction				
Sym.	Prob.	Code	1	2	3	4	
a2	0.4					0.6	0
a6	0.3					0.4	1
a1	0.1						
a4	0.1						
a3	0.06						
a5	0.04						

   b) Explain boundary extraction and region filling process. (6M)

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