Total No. of Questions : 8]

SEAT No. :

P3107

[Total No. of Pages : 2

[5154]-674

B.E.(Computer Engineering)

IMAGE PROCESSING

(2012 Pattern) (Semester-I) (410444A) (End Sem.) (Elective-I)

Time : 2½ Hours] *[Max. Marks : 70*

Instructions to the candidates:

1) ***Answer Que. 1 or Que.2, Que.3 or Que.4, Que. 5 or Que. 6, Que. 7 or Que. 8.***
2) ***Neat diagram should be drawn wherever necessary.***
3) ***Use of electronic pocket Calculator is allowed.***
4) ***Assume suitable data, if necessary.***

Q1) a) Explain Fundamental steps of image processing considering any real life application. **[6]**

b) Distinguish between mask processing and point processing techniques. Explain any two methods from each. **[8]**

c) Explain the types of pixel adjacency observed in an image. **[6]**

OR

Q2) a) Explain Image digitization process in detail? **[8]**

b) Explain any three edge detector operators with its properties in detail and state its category (first derivative or second derivative). **[6]**

c) Explain region split and merge technique with example and draw its quad tree representation. **[6]**

Q3) a) Define compression ratio. Explain how we can achieve image compression using run length coding for given image and calculate compression ratio.

$$\begin{bmatrix} 3 & 3 & 3 & 2 \\ 2 & 3 & 3 & 3 \\ 3 & 2 & 2 & 2 \\ 2 & 1 & 1 & 0 \end{bmatrix}$$ **[8]**

b) With suitable example, explain feature extraction in an image. **[8]**

OR

P.T.O.

Q4) a) Explain any two object recognition method. **[8]**

b) Explain the methods used for lossless image compression. **[8]**

Q5) a) What are the different modalities used for ionizing radiation? Discuss what are the issues involved in it. **[10]**

b) List three ways in which the contrast is maximized in mammography with a short explanation of the principles behind each. **[8]**

OR

Q6) Write a short note on any three: **[18]**

a) Images from X-rays and its application

b) PACs

c) Does and risk

d) Ultrasound

Q7) a) Discuss workflow of digital photogammetric process. **[8]**

b) Explain different stereo imaging concepts from satellites. **[8]**

OR

Q8) Write shorts note on any two: **[16]**

a) Block triangulation

b) Photogrammetric Imaging devices

c) 3D viewing in digital photogrammetry