Reg. No. : | | | | | | | | | | |

Question Paper Code: 59409

B.E. / B.Tech. DEGREE EXAMINATION, DEC 2020

Elective

Electronics and Communication Engineering

15UEC909– DIGITAL IMAGE PROCESSING

(Regulation 2015)

Duration: 1.15 hrs Maximum: 30 Marks

PART A - (6 x 1 = 6 Marks)

(Answer any six of the following questions)

1. A continuous image is digitized at___points. CO1- R

   (a) Random (b) Vertex (c) Contour (d) Sampling

2. To convert a continuous sensed data into Digital form, which of the following is required? CO1 -R

   (a) Sampling (b) Quantization (c) Both a and b (d)Neither a nor b

3. Which of the following low pass filters is/are covers the range of very sharp filter function? CO2- R

   (a) Ideal low pass filters (b) Butterworth low pass filter

   (c) Gaussian low pass filter (d) All of the above

4. Median filter belongs to which category of filters? CO2 -R

   (a) Linear spatial filter (b) Frequency domain filter

   (c) Order static filter (d) Sharpening filter

5. Purpose of restoration is to gain CO2- R

   (a) Degraded image (b) Original image (c) Pixels (d) Coordinates

6. Filters are used to_____ CO3 -R

(a) acquire the image (b) partition the image

(c) remove the noise (d) all of the mentioned

7. Opening and closing are each others CO3- R

(a) Neighbours (b) Duals (c) Centers (d) Corners

8. On which of the following operation of an image, the topology of the region changes? CO4 -R

(a) Stretching (b) Rotation (c) Folding (d) Distance measure

9. Erosion followed by dilation is CO3- R

(a) Opening (b) Closing (c) Blurring (d) Translation

10. External characteristics of an image focus on _____ CO5 -R

(a) shape (b) colour (c) textures (d) all of the mentioned

PART – B (3 x 8= 24 Marks)

(Answer any three of the following questions)

11. Explain the properties of 2D Fourier Transform. CO1- U (8)

12. Explain the types of gray level transformation used for image enhancement. CO2- U (8)

13. Illustrate the steps involved in histogram equalization. CO2- U (8)

$$I = \begin{bmatrix} 4 & 4 & 4 & 4 & 4 \\ 3 & 4 & 5 & 4 & 3 \\ 3 & 5 & 5 & 5 & 3 \\ 3 & 4 & 5 & 4 & 3 \\ 4 & 4 & 4 & 4 & 4 \end{bmatrix}$$

14. Discuss about the importance of Hit-or-Miss morphological transformation operation on a digital binary image with examples. CO3- U (8)

15. Discuss about region based image segmentation techniques. Compare with threshold based segmentation techniques. CO3- U (8)