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

Question Paper Code: 57803

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

Third Semester

Information Technology

15UIT703 - FUNDAMENTALS OF IMAGE PROCESSING

(Regulation 2015)

Duration: One hour Maximum: 30 Marks

PART A - (6 x 1 = 6 Marks)

(Answer any six of the following questions)

1. What is an image? CO1- R

   (a) Picture (b) Matrix of pixel (c) Collection of pixel (d) All of these

2. RGB colors on internet applications are called CO1- R

   (a) safe colors (b) colors space (c) web colors (d) safe web colors

3. Which of the following is best suited for salt-and-pepper noise elimination? CO2- R

   (a) Average filter (b) Box filter (c) Max filter (d) Median filter

4. Degraded image is produced using degradation process and CO2- R

   (a) additive noise (b) destruction (c) pixels (d) coordinates

5. Power spectra and noise of under graded image must be known is a statement of CO2- R

   (a) Notch filter (b) Bandpass filter

   (c) Wiener filter (d) Max filter

6. Filter that replaces pixel value with medians of intensity levels is CO2- R

   (a) arithmetic mean filter (b) geometric mean filter

   (c) median filter (d) sequence mean filter

7. Zero crossing operator use the following CO3- R

   (a) First derivative (b) Second derivative

   (c) Sobel operator (d) Gaussian operator

8. Region growing is a ……image segmentation approach CO3- R

(a) bottom-up (b) Top down (c) All of the above (d) None of the above

9. Which segmentation technique is based on clustering approaches? CO3- R

(a) K-means algorithm (b) Threshold based algorithm

(c) Histogram based algorithm (d) Edge detection based algorithm

10. Which technique applies Edge segmentation CO3- R

(a) Heuristics operator (b) Canny operator

(c) All of the above (d) None of the above

PART – B (3 x 8= 24 Marks)

(Answer any three of the following questions)

11. Describe the functions of elements of digital image processing system with a diagram. CO1- U (8)

12. Explain the use of Wiener filter or Least mean square filter in image restoration CO2- U (8)

13. Let f(x,y)=[0 1 0 1 1 1 11] let w = [1 4 5 6]. Perform convolution and correlation of the filter on f(x,y) CO2- U (8)

14. Illustrate with suitable examples how are gradient operators used for detection of edges in medical images. CO3- U (8)

15. Apply the concepts involved in the Otsu's method to perform automatic thresholding process. CO3- App (8)