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Question Paper Code: 56B02

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

Sixth semester

Biomedical Engineering

15UBM602- IMAGE PROCESSING TECHNIQUES

(Regulation 2015)

Duration: 1.15 hrs

Maximum: 30 Marks

PART A - (6 x 1 = 6 Marks)

(Answer any six of the following questions)

1. An image is considered to be a function of $a(x,y)$ where a represents CO1-R
 - (a) Height of image
 - (b) Width of image
 - (c) Amplitude of image
 - (d) Resolution of image
2. _____ is used for recording images for hardcopy devices. CO1-R
 - (a) Optical filter
 - (b) Touch screen
 - (c) Heat –sensitive device
 - (d) Transparent film
3. How is array operation carried out involving one or more images? CO2-R
 - (a) Array by array
 - (b) Pixel by pixel
 - (c) Column by column
 - (d) Row by row
4. _____ tool used in tasks such as zooming, shrinking, rotating, etc., CO2-R
 - (a) Sampling
 - (b) Interpolation
 - (c) Filters
 - (d) Enhancement
5. _____ image processing technique used to improve the quality of image for human viewing. CO3-R
 - (a) Compression
 - (b) Enhancement
 - (c) Restoration
 - (d) Analysis
6. _____ type of enhancement operations are used to modify pixel values according to the value of the pixel's neighbors. CO3-R
 - (a) Point operations
 - (b) Local operations
 - (c) Global operations
 - (d) Mask operations

7. Recall the color attribute that gives a measure of the degree to which a pure color is diluted by white light. CO4-R
- (a) Saturation (b) Intensity (c) Pixel (d) Hue
8. Region of Interest (ROI) operations is commonly called as _____. CO4-R
- (a) Dilation (b) Masking (c) Shading correction (d) Restoration
9. Compression ratio is expressed as _____. CO5-R
- (a) Original size/compressed size (b) Original pixel/compressed pixel
- (c) Compressed size/ original size (d) Compressed pixel / original pixel
10. In 8- distance measurement system, distance between centre pixel and a corner pixel is _____. CO5-R
- (a) 2 unit (b) $\sqrt{2}$ unit (c) 1 unit (d) 1.5 unit

PART – B (3 x 8= 24 Marks)

(Answer any three of the following questions)

11. How an RGB model is represented using HSI format? CO1-Ana (8)
12. How is a monochrome image enhanced by histogram equalization? CO2-Ana (8)
13. Define image restoration. Explain the degradation model for continuous function. CO3-U (8)
14. Show with relevant equations how point, line and edge detectors are used for image segmentation. CO4-U (8)
15. (Outline the Huffman coding procedure with an example. CO5-U (8)