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

Question Paper Code: 49410

B.E. / B.Tech. DEGREE EXAMINATION, MAY 2022

Elective

Electronics and Communication Engineering

14UEC910 - DIGITAL IMAGE PROCESSING

(Regulation 2014)

Duration: Three hours Maximum: 100 Marks

Answer ALL Questions

PART A - (10 x 1 = 10 Marks)

1. Amount of energy that flows from the light source is

(a) Brightness (b) Radiance (c) Luminance (d) Reflectance

2. Intensity levels in 8-bit image are

(a) 128 (b) 255 (c) 256 (d) 512

3. Smoothing filters are mostly used in

(a) Blurring (b) Noise reduction (c) Contrast (d) A and B

4. The method used to generate a processed image that has a constant histogram is called

(a)Histogram enhancement (b) Histogram matching

(c) Histogram normalization (d) Histogram equalization

5. Image restoration and image enhancement is performed in

(a) Both thee spatial and frequency (b) Both frequency and time

(c) Only frequency domain (d) Only spatial domain

6. Minimum mean square error filter is otherwise called as

(a)Low pass filter (b) High pass filter (c) Inverse filter (d) Least square filter

7. Canny edge detacher is

(a) Isotropic defector (b) Non isotropic defector

(c) Does not produce long thin contours (d) Uses the second derivative

8. Gradient computation is more useful in

(a) Point detection (b) Edge detection (c) Area detection (d) Line detection

9. The Hit-or-Miss transformation is used for shape _____

(a) Removal (b) detection (c) Compression (d) Decompression

10. Third moment is defined as the meaner of

(a) Flatness (b) Skewness

(c) Sharpness (d) Variability of the image

PART - B (5 x 2 = 10 Marks)

11. Describe the characterization of light.

12. What is the need for Directional Smoothing in image processing?

13. Give the comparison of various noise models.

14. Write the process of edge linking and boundary detection.

15. Write notes on polygonal approximation.

PART - C (5 x 16 = 80 Marks)

16. (a) Explain in detail elements of visual perception. (16)

Or

(b) Explain in detail about KL transform of images with its properties. Also explain fast KL transform. (16)

17. (a) Write notes on smoothing spatial filtering (16)

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Or

(b) Explain the types of gray level transformation used for image enhancement (16)

18. (a) Describe in detail the geometrical transformation applied to the pixels to restore the image.. (16)

Or

(b) Evaluate the image restoration with the help of spatial filtering. (16)

19. (a) Summarize region based image segmentation techniques. (16)

Or

(b) How edge detection is performed in digital images by

(i) Gradient Operator. (4)
(ii) Maar-Hildreth edge detector. (6)
(iii) The Canny edge detector. (6)

20. (a) Describe the following

(i) Convex Hull. (4)
(ii) Skeletons. (6)
(iii) Pruning. (6)

Or

(b) Explain in detail various image representation approaches (16)