(6 pages)

Reg. No. : .....

Code No. : 6447 **Sub. Code : ZCSM 31**

M.Sc.(CBCS) DEGREE EXAMINATION,
NOVEMBER 2022.

Third Semester

Computer Science

DIGITAL IMAGE PROCESSING

(For those who joined in July 2021 onwards)

Time : Three hours Maximum : 75 marks

PART A — (10 × 1 = 10 marks)

Answer ALL questions.

Choose the correct answer :

1. Image restoration is used to improve the ———— image.

   (a) Quantity (b) Quality

   (c) Blur (d) None of the above

2. Un-sampling is a process of ———— the spatial resolution of the image.

   (a) Decreasing (b) Increasing

   (c) Averaging (d) Doubling

3. Which of the following is the primary objective of sharpening of an image?

   (a) Blurring the image

   (b) Highlight fine details in the image

   (c) Increase the brightness of the image

   (d) Decrease the brightness of the image

4. An alternate approach to median filtering is ————

   (a) Use a mask (b) Gaussian filter

   (c) Sharpening (d) Laplacian filter

5. Image transforms are needed for

   (a) Conversion information form spatial to frequency

   (b) Spatial domain

   (c) Time domain

   (d) Both (b) and (c)

6. In power transformation values are dependent on value of

(a) X-rays (b) Alpha

(c) Beta (d) Gamma

7. Compression is done for saving

(a) Storage (b) Bandwidth

(c) Money (d) Both (a) and (b)

8. Which of the following would not be suitable for Lossy Compression?

(a) Speech (b) Video

(c) Text (d) Image

9. Sobel is better than Prewitt in Image

(a) Sharpening (b) Bluring

(c) Smoothing (d) Contrast

10. Accuracy of image segmentation can be improved by the type of ————————

(a) Processes (b) Images

(c) Division (d) Sensors

PART B — (5 × 5 = 25 marks)

Answer ALL questions, choosing either (a) or (b).
Each answer should not exceed 250 words.

11. (a) List and explain the basic mathematical tools used in Digital Image Processing.

Or

(b) Define Digital Image Processing. Explain and its uses.

12. (a) Explain the steps involved in frequency domain filtering.

Or

(b) Classify the various types of sharpening fitters.

13. (a) Interpret the concept of image restoration.

Or

(b) Examine the concept of slant transform.

14. (a) Discuss about pseudo color in image processing.

Or

(b) Is Digital watermarking act as an important role in Image Processing? Discuss

15. (a) Compare image detection and discontinuities.

Or

(b) How edge deduction done using sobel operator? Analyze.

PART C — (5 × 8 = 40 marks)

Answer ALL questions, choosing either (a) or (b)
Each answer should not exceed 600 words.

16. (a) Discuss about sensing and acquisition.

Or

(b) Categorize the various components of digital image processing.

17. (a) Illustrate the properties of 2D discrete Fourier transform.

Or

(b) Illustrate the concept of spatial enhancement methods.

18. (a) Summarize the concept of geometric mean filter.

Or

(b) Classify the various types of noise model.

19. (a) Describe the full color image processing.

Or

(b) Which type of compression should be set for color image? Analyze.

20. (a) Explain the use of motion in segmentation.

Or

(b) Describe the multilevel threshold techniques.

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