



BRAINWARE UNIVERSITY

Term End Examination 2023-2024

Programme – B.Tech.(ECE)-2019/B.Tech.(ECE)-2020

Course Name – Digital Image and Video Processing

Course Code - PEC-ECEL802B

(Semester VIII)

Full Marks : 60

Time : 2:30 Hours

[The figure in the margin indicates full marks. Candidates are required to give their answers in their own words as far as practicable.]

Group-A

(Multiple Choice Type Question)

1 x 15=15

1. Choose the correct alternative from the following :

- (i) Identify, The spatial coordinates of a digital image (x,y) are proportional to:
- a) Position
 - b) Brightness
 - c) Contrast
 - d) Noise
- (ii) Among the following image processing techniques select fast, precise and flexible.
- a) Optical
 - b) Digital
 - c) Electronic
 - d) Photographic
- (iii) An image is considered to be a function of $a(x,y)$, where a state:
- a) Height of image
 - b) Width of image
 - c) Amplitude of image
 - d) Resolution of image
- (iv) The range of values spanned by the gray scale express:
- a) Dynamic range
 - b) Band range
 - c) Peak range
 - d) Resolution range
- (v) Tell, which is a colour attribute that describes a pure colour?
- a) Saturation
 - b) Hue
 - c) Brightness
 - d) Intensity
- (vi) Identify, which means the assigning meaning to a recognized object.
- a) Interpretation
 - b) Recognition
 - c) Acquisition
 - d) Segmentation
- (vii) Choose, a typical size comparable in quality to monochromatic TV image is of size.
- a) 256 X 256
 - b) 512 X 512
 - c) 1920 X 1080
 - d) 1080 X 1080
- (viii) Represent, the number of grey values are associate with the integer powers of:
- a) 4
 - b) 2
 - c) 8
 - d) 1
- (ix) Choose, in which step of processing, the images are subdivided successively into smaller state?

- a) Image enhancement
c) Segmentation
- b) Image acquisition
d) Wavelets
- (x) Which of the following step deals with tools for extracting image components those are useful in the representation and describe the shape?
a) Segmentation
c) Compression
- b) Representation & description
d) Morphological processing
- (xi) To convert a continuous sensed data into Digital form, choose which of the following is required?
a) Sampling
c) Both Sampling and Quantization
- b) Quantization
d) Neither Sampling nor Quantization
- (xii) Observe a continuous image $f(x, y)$ to digital form, we have to sample the function in _____
a) Coordinates
c) All of the mentioned
- b) Amplitude
d) None of the mentioned
- (xiii) The quality of a digital image is well determined by _____
a) The number of samples
c) All of the mentioned
- b) The discrete gray levels
d) None of the mentioned
- (xiv) Assume that an image $f(x, y)$ is sampled so that the result has M rows and N columns. If the values of the coordinates at the origin are $(x, y) = (0, 0)$, then the notation $(0, 1)$ is used to describe
a) Second sample along first row
c) First sample along first row
- b) First sample along second row
d) Second sample along second row
- (xv) Choose, A continuous image is digitised at _____ points.
a) random
c) contour
- b) vertex
d) sampling

Group-B

(Short Answer Type Questions)

3 x 5=15

2. Explain file compression?
3. Define resolution.

(3)

(3)

4. Analyze Image pyramid.

(3)

5. Explain the working of adaptive median filter.

(3)

6. Explain, Sharpening filters in frequency domain.

(3)

OR

- Explain, Sharpening filters in spatial domain.

(3)

Group-C

(Long Answer Type Questions)

5 x 6=30

7. Explain the term Luminance?

(5)

8. Explain the morphological operation to extract the boundary of object for binary image. (5)
9. Explain about lossy predictive coding. (5)
10. Explain the method of Least Mean Squares Filtering (Wiener) for image restoration. (5)
11. Discuss: i)Power law transformation ii)Contrast stretching (5)
12. Explain image compression model in detail with diagram. (5)

OR

Discuss and Differentiate lossy and loss less image compression methods. (5)
