BRAINWARE UNIVERSITY

Term End Examination 2023
Programme – B.Tech.(ECE)-2019
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) describe pixel as?

a) Pixel is the elements of a digital image b) Pixel is the elements of an analog image
c) Pixel is the cluster of a digital image d) Pixel is the cluster of an analog image

(v) The range of values spanned by the gray scale express:

a) Dynamic range b) Band range
c) Peak range d) Resolution range

(vi) Tell, which is a colour attribute that describes a pure colour?

a) Saturation b) Hue
c) Brightness d) Intensity

(vii) Identify, which means the assigning meaning to a recognized object.

a) Interpretation b) Recognition
c) Acquisition d) Segmentation

(viii) 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

(ix) Choose, in which step of processing, the images are subdivided successively into smaller state?

a) Image enhancement b) Image acquisition
c) Segmentation d) Wavelets

(x) State, What is the next step in image processing after compression?

a) Wavelets b) Segmentation
c) Representation and description d) Morphological processing

(xi) List the number of steps are involved in image processing?

a) 10 b) 9
c) 11 d) 12

(xii) To convert a continuous sensed data into Digital form, choose which of the following is required?

a) Sampling b) Quantization
c) Both Sampling and Quantization d) Neither Sampling nor Quantization

(xiii) For a continuous image f(x, y), how could be Sampling defined?

a) Digitizing the coordinate values b) Digitizing the amplitude values
c) All of the mentioned d) None of the mentioned

(xiv) The quality of a digital image is well determined by _____

a) The number of samples b) The discrete gray levels
c) All of the mentioned d) None of the mentioned

(xv) After digitization process a digital image with M rows and N columns have to be positive and for the number, L, max gray levels i.e. an integer power of 2 for each pixel. Then select the number b, of bits required to store a digitized image which is:

a) b=M*N*k b) b=M*N*L
c) b=M*L*k d) b=L*N*k

Group-B

(Short Answer Type Questions) 3 x 5=15

2. Explain file compression? (3)
3. Define resolution. (3)
4. Explain, Smoothing filters in spatial domain. (3)
5. Express various types of noise. (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 elements of digital Video processing system with diagram. (5)
8. Discuss and Differentiate lossy and loss less image compression methods. (5)
9. What are the derivative operators useful in image segmentation? (5)
10. What is thresholding? Explain about global thresholding. (5)
11. How many different shades of grey are there in a color RGB system in which each RGB image is an 8 bit image? (5)
12. Explain the term Luminance? (5)

OR

Explain Spatial Filtering? (5)

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