BRAINWARE UNIVERSITY

Term End Examination 2021 - 22
Programme – Bachelor of Computer Applications
Course Name – Image Processing
Course Code - BCAD501B
(Semester V)

Time : 1 Hr.15 Min. **Full Marks : 60**

[The figure in the margin indicates full marks.]

Group-A
(Multiple Choice Type Question) 1 x 60=60

Choose the correct alternative from the following :

(1) What is the expanded form of JPEG?
a) Joint Photographic Expansion Group
b) Joint Photographic Experts Group
c) Joint Photographs Expansion Group
d) Joint Photographic Expanded Group

(2) In which step of the processing, assigning a label to an object based on its descriptors i s done?
a) Object recognition
b) Morphological processing
c) Segmentation
d) Representation & description

(3) Wavelength of visible green ranges from
a) 0.52-0.70
b) 0.52-0.62
c) 0.53-0.60
d) 0.52-0.60

(4) In which step of processing, the images are subdivided successively into smaller region s?
a) Image enhancement
b) Image acquisition
c) Segmentation
d) Wavelets

(5) What is the step that is performed before color image processing in image processing?
a) Wavelets and multi resolution processing
b) Image enhancement
c) Image restoration
d) Image acquisition

(6) The major area of imaging in visual spectrum is in ___.
a) automated visual inspection
b) auto visual inspection
c) visual inspection
d) automated inspection

(7) Which is the image processing related field?
a) medicines
b) chemistry
c) neurobiology
d) chemicals

(8) Remote sensing is an application of __.

a) gamma rays
b) x-rays
c) visible and infrared
d) ultraviolet

(9) Which color is having largest wavelength in visible spectrum?

a) Red
b) Green
c) Blue
d) Yellow

(10) Which radio wave band has the longest wavelength?

a) gamma rays
b) x-rays
c) radio waves
d) ultraviolet

(11) Anomaly detection is important in ___.

a) lithography
b) astronomy
c) industrial inspection
d) medicine inspection

(12) Finished goods often checked using ____

a) voice over IP
b) digital image processing
c) audio processing
d) video processing

(13) The first Step of image processing is _____.

a) filtration
b) image acquisition
c) image enhancement
d) image restoration

(14) To convert a continuous sensed data into Digital form, which of the following is requir ed?

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

(15) 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

(16) How many bits are available for a pixel in a color image?

a) 24
b) 8
c) 16
d) 22

(17) In a dark image, the components of histogram are concentrated on which side of the gr ey scale?

a) High
b) Medium
c) Low
d) Evenly distributed

(18) Histogram Equalisation is mainly used for _____.

a) Image enhancement
b) Blurring
c) Contrast adjustment
d) None of the Mentioned

(19) In _____ image we notice that the components of histogram are concentrated on the high side on intensity scale.

a) Bright
b) Dark
c) Colorful
d) All of the Mentioned

(20) What is a Histogram?

a) Counting of pixel
b) Pixel frequency in each intensity level
c) Counting of intensity
d) None of the Mentioned

(21) How a continuous sensed data is converted into Digital form?

a) Sampling
b) Quantization

c) Both Sampling and Quantization is used
d) Neither Sampling nor Quantization

(22) What is the maximum gray level in 8 bits?

a) 8
b) 256
c) 32
d) None of the mentioned

(23) The resulting image of sampling and quantization is considered a matrix of real numbers. By what name(s) the element of this matrix array is called _____.

a) Image element or Picture element
b) Pixel or Pel
c) All of the mentioned
d) None of the mentioned

(24) Applying Box filter we get ___.

a) A sharpen picture
b) Blur picture
c) Inverted Image
d) None of the mentioned

(25) An image whose gray-levels span a significant portion of gray scale have _____ dynamic range while an image with dull, washed out gray look have _____ dynamic range.

a) Low and High respectively
b) High and Low respectively
c) Both have High dynamic range, irrespective of gray levels span significance on gray scale
d) Both have Low dynamic range, irrespective of gray levels span significance on gray scale

(26) Electromagnetic waves can be visualized as a ____.

a) Sine wave
b) Cosine wave
c) Tangential wave
d) None of the mentioned

(27) Of the following, _____ has the maximum frequency.

a) UV Rays
b) Gamma Rays
c) Microwaves
d) Radio Waves

(28) The difference is intensity between the highest and the lowest intensity levels in an image is _____.

a) Noise
b) Saturation
c) Contrast
d) Brightness

(29) Contrast enhancement method is related to which of the following?

a) Frequency domain Method.
b) Spatial domain method
c) Neighborhood method
d) None of the mentioned

(30) What is the unit of compactness of a region?

a) Meter
b) Meter2
c) No units
d) Meter-1

(31) The output of a smoothing, linear spatial filtering is a _____ of the pixels contained in the neighbourhood of the filter mask.

a) Sum
b) Product
c) Average
d) Dot Product

(32) What is the undesirable side effect of Averaging filters?

a) No side effects
b) Blurred image
c) Blurred edges
d) Loss of sharp transitions

(33) Which term is used to indicate that pixels are multiplied by different coefficients?

a) Weighted average
b) Squared average
c) Spatial average
d) None of the Mentioned

(34) Impulse noise in Order-statistic filter is also called as _____.

a) Median noise
b) Bilinear noise
c) Salt and pepper noise
d) None of the Mentioned

(35) Which of the following is best suited for salt-and-pepper noise elimination?

a) Average filter
b) Box filter
c) Max filter
d) Median filter

(36) A filter that passes low frequencies is _____.

a) Band pass filter
b) High pass filter
c) Low pass filter
d) None of the Mentioned

(37) Among the following image processing techniques, which is fast, precise and flexible?

a) Optical
b) Digital
c) Electronic
d) Photographic

(38) Pick the colour attribute that describes a pure colour.

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

(39) If gray values are 4 then the value of power is ____ .

a) 2
b) 4
c) 6
d) 8

(40) What is the tool used in tasks such as zooming, shrinking, rotating, etc.?

a) Sampling
b) Interpolation
c) Filters
d) None of the Mentioned

(41) Which mathematical tool is used on the pixels in sharpening the image?

a) Integration
b) Average
c) Median
d) Differentiation

(42) ____ tool is used in tasks such as zooming, shrinking, rotating, etc.

a) Sampling
b) Interpolation
c) Filters
d) None of the Mentioned

(43) Electronic printing process requires ____.

a) Image Sharpening
b) Image restoration
c) Image filtering
d) None of the Mentioned

(44) In which of the following cases, we would not worry about the behaviour of sharpenin g filter?

a) Flat segments
b) Step discontinuities
c) Ramp discontinuities
d) Slow varying gray values

(45) Which of the following is not a valid response when we apply a second derivative?

a) Zero response at onset of gray level step
b) Nonzero response at onset of gray level step
c) Zero response at flat segments
d) Nonzero response along the ramps

(46) y=mx+c . Here c is the ____.

a) Slope
b) X intercept
c) Y intercept
d) None of the mentioned.

(47) How will appear the edges generated by first order derivatives when compared to that o f second order derivatives?

a) Finer
b) Equal
c) Thicker
d) Independent

(48) Sharpening is analogous to which of the following operations?

a) To spatial integration
b) To spatial differentiation
c) All of the mentioned
d) None of the mentioned

(49) Which of the following is true about the first order derivative of a digital function?

a) Must be nonzero in the areas of constant gre y values
b) Must be zero at the onset of a gray-level step or ramp discontinuities
c) Must be nonzero along the gray-level ramps
d) None of the mentioned

(50) What kind of relation can be obtained between first order derivative and second order d erivative of an image having a on the basis of edge productions that shows a transition l ike a ramp of constant slope?

a) First order derivative produces thick edge w hile second order produces a very fine edge
b) Second order derivative produces thick edge while first order produces a very fine edge
c) Both first and second order produces thick e dge
d) Both first and second order produces a very f ine edge

(51) Choose the right statement after comparing between the response of first order derivati ve and second order derivative of an image on a transition into gray-level step from zer o?

a) First order derivative has a stronger response than a second order
b) Second order derivative has a stronger respo nse than a first order
c) Both first and second order derivative has th e same response
d) None of the mentioned

(52) What is the thickness of the edges produced by first order derivatives when compared t o that of second order derivatives?

a) Finer
b) Equal
c) Thicker
d) Independent

(53) Sharpening is equal to which of the following operations?

a) To spatial integration
b) To spatial differentiation
c) All of the mentioned
d) None of the mentioned

(54) Which of the facts(s) is/are true for the first order derivative of a digital function?

a) Must be nonzero in the areas of constant gre y values
b) Must be zero at the onset of a gray-level step or ramp discontinuities
c) Must be nonzero along the gray-level ramps
d) None of the mentioned

(55) Define the first order derivative of a one-dimensional function f(x)?

a) f(x+1)-f(x)
b) f(x+1)+ f(x-1)-2f(x)
c) All of the mentioned depending upon the tim e when partial derivative will be dealt along t wo spatial axes
d) None of the mentioned

(56) What kind of relation can be obtained between first order derivative and second order d erivative of an image on the response obtained by encountering an isolated noise point in the image?

a) First order derivative has a stronger response than a second order
b) Second order derivative has a stronger respo nse than a first order
c) Both enhances the same and so the response is the same for both first and second order de rivative
d) None of the mentioned

(57) What does Image Differentiation enhance?

a) Edges
b) Pixel Density
c) Contours
d) None of the mentioned

(58) Which of the following is a second-order derivative operator?

a) Histogram
b) Laplacian
c) Gaussian
d) None of the mentioned

(59) Dark characteristics in an image are better solved using _____.

a) Laplacian Transform
b) Gaussian Transform
c) Histogram Specification
d) Power-law Transformation

(60) Which of the following fails to work on dark intensity distributions?

a) Laplacian Transform
b) Gaussian Transform
c) Histogram Equalization
d) Power-law Transformation