BRAINWARE UNIVERSITY

Term End Examination 2020 - 21

Programme – Master of Computer Applications

Course Name – Image Processing

Course Code - MCA502B

Semester / Year - Semester V

Time allotted : 85 Minutes | Full Marks : 70

[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 70=70

1. *(Answer any Seventy)*

(i) The smallest discernible change in intensity level is called _____

a) Intensity Resolution
b) Contour
c) Saturation
d) Contrast

(ii) Intensity levels in 8-bit image are

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

(iii) RGB colors on internet applications are called

a) Safe Colors
b) Color Space
c) Safe Web Colors
d) Web Colors

(iv) 1024x 1024 image has a resolution of

a) 1048576
b) 1148576
c) 1248576
d) 1348576

(v) Hue and saturation, both together produce

a) brightness
b) transitivity
c) chromaticity
d) reflectivity

(vi) In the Visible spectrum, the which color has the maximum wavelength.

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

(vii) How is array operation carried out involving one or more images?

a) Array by array
b) Pixel by Pixel
c) Column by Column
d) Row by row

(viii) Enhancement of differences between images is based on the principle of

a) Additivity
b) Homogeneity
c) Subtraction
d) None of these

(ix) Sensor strip mounted in a ring configuration is used in

a) Microscopy
b) Medical
c) Industry
d) Rader

(x) The transition between continuous values of the image function and its digital equivalent is called

a) Quantization
b) Sampling
c) Color
d) None of these

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

a) Sampling
b) Interpolation
c) Quantization
d) Rotation

(xii) Lower DPI Means

a) Lower Resolution
b) Lower Intensity
c) Lower Color
d) Lower Contrast

(xiii) The difference in resolution between the highest and the lowest intensity levels in an image is

a) Noise
b) Saturation
c) Contrast
d) None of these

(xiv) In the Visible spectrum, which color has the shortest wavelength?

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

(xv) What are the different extensions of images Except

a) .gif
b) .jpg
c) .bmp
d) .py

(xvi) RGB Color model is which type color model?

a) Additive
b) Multiplicative
c) Subtractive
d) Reflective

(xvii) M x N image has a resolution of

a) M*N
b) M/N
c) M-N
d) M+N

(xviii) L = 22 * 16 would have

a) 2 levels
b) 4 levels
c) 6 levels
d) None of these

(xix) What do you mean by achromatic light?

a) Monochromatic Light
b) Chromatic Light
c) Infrared Light
d) UV Ray

(xx) Which of the following is a receptor in the retina of human eye?

a) Retina
b) Pupil
c) Rods and Cones
d) None of these

(xxi) How is image formation in the eye different from that in a photographic camera

a) No Difference
b) variable Focal Length
c) Variable Intensity
d) Variable speed

(xxii) Range of light intensity levels to which the human eye can adapt

a) 10-6 to 10-4
b) 10-6 to 104
c) 104 to 106
d) 4 to 6

(xxiii) What is subjective brightness?

a) Related to intensity
b) Related to brightness
c) Related to image perception
d) Related to resolution

(xxiv) What is brightness adaptation?

a) Changing the eye's overall sensitivity
b) Changing the eye's imaging ability
c) Adjusting the focal length
d) Transition from scotopic to photopic vision

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

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

(xxvi) The digitization process i.e. the digital image has M rows and N columns, requires decisions about values for M, N, and for the number, L, of gray levels allowed for each pixel. The value M and N have to be:

a) M and N have to be positive integer
b) M and N have to be a negative integer
c) M have to be negative and N have to be positive integer
d) M has to be positive and N have to be negative integer

(xxvii) 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 these
d) None of these

(xxviii) Power Law Transformation is useful for

a) Medical
b) MRI
c) Rader
d) Purification

(xxix) 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 signify :

a) Second sample along first row
b) Second sample along Second row
c) First sample along first row
d) Second sample along last row

(xxx) The procedure done on a digital image to negate the values of its indiviThe digitization process i.e. the digital image has M rows and N columns, requires decisions about values for M, N, and for the number, L, of max gray levels is an integer power of 2 i.e. L = 2k, allowed for each pixel. If we assume that the discrete levels are equally spaced and that they are integers then they are in the interval _____ and Sometimes the range of values spanned by the gray scale is called the _____ of an image.dual pixels is

a) [0, L – 1] and static range respectively
b) [0, L – 1] and dynamic range respectively
c) [0, L / 2] and dynamic range respectively
d) None of these

(xxxi) In perspective projection, all lines of sight start at a _____point

a) Double
b) Single
c) Tripple
d) Multiple

(xxxii) It is a vertical projection plane used to obtain the object's Perspective is

a) Orthogonal Plane
b) Vertical Plane
c) Perspective Picture Plane
d) Horizontal Plane

(xxxiii) The lower limit of dynamic range ratio can be represented by

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

(xxxiv) The intersection point of visual rays with the PPP is

a) piercing point
b) Penetrating Point
c) Pin Point
d) End Point

(xxxv) It is the line drawn through the station point and perpendicular to the picture plane. It is also called axis of vision or line of sight or

a) Station Point
b) X-Axis
c) Perpendicular Axis
d) Z-Axis

(xxxvi) The image can be smooth using

a) Low-pass filter
b) High-pass filter
c) Contouring
d) Erosion

(xxxvii) The correction of power law response is known as

a) Alpha Correction
b) Beta Correction
c) Pixel Correction
d) Gamma Correction

(xxxviii) 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 these
d) None of these

(xxxix) In 2D-translation, a point (x, y) can move to the new position (x', y') by using the equation

a) x'=x+dx and y'=y+dx
b) x'=x+dx and y'=y+dy
c) X'=x+dy and Y'=y+dx
d) X'=x-dx and y'=y-dy

(xl) To generate a Rotation, we must specify

a) Rotation Angle
b) Rotation Distance
c) Rotation Vector
d) Rotation Angle & Rotation Distance both

(xli) The Rotation Axis that is perpendicular to the xy plane and passes through the pivot point is known as

a) Rotation
b) Translation
c) Scaling
d) Morphing

(xlii) An ellipse can also be rotated about its center coordinates by rotating

a) End points
b) Major and Minor axes
c) Peripheral Area
d) All of these

(xliii) The two-dimensional scaling equation in the matrix form is

a) P'=P+T
b) P=S*P
c) P=P*R
d) P=P/S

(xliv) Scaling of a polygon is done by computing

a) The product of (x, y) of each vertex
b) (x, y) of end points
c) Center Coordinates
d) The sum of (x, y) of each vertex

(xlv) We control the location of a scaled object by choosing the position is known as

a) Pivot Point
b) Fixed Point
c) Differential Scaling
d) Uniform Scaling

(xlvi) The objects transformed using the equation P'=S*P should be

a) Scaled
b) Repositioned
c) Both Scaled and Repositioned
d) Morphed

(xlvii) The image can be blurred using

a) Low-pass filter
b) High-pass filter
c) Contouring
d) Erosion

(xlviii) What is a filter?

a) Frequency selective circuit
b) Amplitude selective circuit
c) Frequency Dumping circuit
d) Amplitude Dumping circuit

(xlix) What type of filter produces a predictable phase shift characteristic in all frequencies?

a) Band Pass Filter
b) High Pass Filter
c) Low Pass Filter
d) All Pass Filter

(l) Applying Box filter we get

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

(li) What mid pixel weigh in Weighted filter?

a) 2
b) 1
c) 4
d) None of these

(lii) An image contains noise having appearance as black and white dots superimposed on the image. Which of the following noise(s) has the same appearance?

a) Salt-and-pepper noise
b) Gaussian Noise
c) Both Salt-and-pepper noise and Gaussian Noise
d) No Noise

(liii) What mid pixel weigh in Box filter?

a) 2
b) 1
c) 4
d) None of these

(liv) Histogram opposites to each other are known as

a) Edges
b) Boundaries
c) Complements
d) None of these

(lv) Intensity levels in 7-bit image are

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

(lvi) Gray Level enhancement increases

a) Contrast
b) Brightness
c) Luminance
d) Chromatocity

(lvii) Gray level enhancement preserves which of the following

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

(lviii) A class of system that achieves the separation of illumination and reflectance component of an image is termed as

a) Base Class
b) Homomorphic System
c) Heterogeneous System
d) None of these

(lix) Which of the following image component is characterized by a slow spatial variation?

a) Illumination component
b) Reflectance component
c) Scaling Component
d) Both Illumination component and Reflectance component

(lx) The reflectance component of an image varies abruptly particularly at the junction of dissimilar objects. The characteristic lead to associate illumination with

a) The low frequency of Fourier transform
b) The high frequency of Fourier transform

of logarithm of the image

of logarithm of the image

c) Both The low frequency of Fourier transform of logarithm of the image and The high frequency of Fourier transform of logarithm of the image

d) High wavelength

(lxi) In wiener filtering it is considered that image and noises are

a) Homomorphic

b) Equal

c) Uncorrelated

d) Correlated

(lxii) Linear Function Process possesses the property of

a) Additivity

b) Homogeneity

c) Both Additivity and Homogeneity

d) Multiplicity

(lxiii) Convolution in spatial domain is multiplication in

a) Frequency Domain

b) Spatial Domain

c) Time Domain

d) Plane

(lxiv) Gausian Noise is known as

a) Red Noise

b) White Noise

c) Black Noise

d) Normal Noise

(lxv) Which one is not a type of histogram

a) Uniform Histogram

b) Bimodal Histogram

c) Symmetric Histogram

d) Pivotal Histogram

(lxvi) To change the position of a circle or ellipse we translate

a) Center Coordinates

b) Center coordinates and redraw the figure in new location

c) Outer Coordinates

d) Diameter of the eclipse

(lxvii) The basic geometric transformation is/are?

a) Translation
b) Scaling
c) Rotation
d) All of these

(lxviii) Gradient magnitude images are more useful in

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

(lxix) Which is a type of image segmentation

a) Region based segmentation
b) Value based segmentation
c) Row based segmentation
d) None of these

(lxx) Criteria for region segmentation

a) Pixels may be assigned to the same region
b) Pixels may be assigned to the different region
c) All of these
d) None of these