Multiple Choice Questions

On

IMAGE PROCESSING

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250+ MCQ

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Unit-1

1. The spatial coordinates of a digital image (x,y) are proportional to:
(A) Position
(B) Brightness
(C) Contrast
(D) Noise
Correct option is B

2. Among the following image processing techniques which is fast, precise and flexible..
(A) Optical
(B) Digital
(C) Electronics
(D) Photography
Correct option is B

3. An image is considered to be a function of a(x,y), where a represents:
(A) Height of image
(B) Width of image
(C) Amplitude of image
(D) Resolution of image
Correct option is C

4. What is pixel?
(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
Correct option is A

5. The range of values spanned by the gray scale is called:
(A) Dynamic range
(B) Band range
(C) Peak range
(D) Resolution range
Correct option is A

6. Which is a colour attribute that describes a pure colour?
(A) Saturation
(B) Hue
(C) Brightness
(D) Intensity
Correct option is B

7. Which gives a measure of the degree to which a pure colour is diluted by white light?
(A) Saturaton
(B) Hue
(C) Brightness
(D) Intensity
Click for answer A

8. Which means the assigning meaning to a recognized object
(A) Interpretation
(B) Recognition

(C) Acquisition
(D) Segmentation
Correct option is A

9. 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
Correct option is B

10. The number of grey values are integer powers of:
(A) 4
(B) 2
(C) 8
(D) 1
Correct option is B

11. What is the first and foremost step in Image Processing?
(A) Image restoration
(B) Image enhancement
(C) Image acquisition
(D) Segmentation
Correct option is C

12. In which step of processing, the images are subdivided successively into smaller regions?
(A) Image enhancement
(B) Image acquisition
(C) Segmentation
(D) Wavelets
Correct option is D

13. What is the next step in image processing after compression?
(A) Wavelets
(B) Segmentation
(C) Representation and description
(D) Morphological processing
Correct option is D

14. 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
Correct option is C

15. How many number of steps are involved in image processing?
(A) 10
(B) 9
(C) 11
(D) 12
Correct option is A

16. 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
Correct option is B

17. Which of the following step deals with tools for extracting image components those are useful in the representation and description of shape?
(A) Segmentation
(B) Representation & description functions
(C) Compression
(D) Morphological processing
Correct option is D

18. In which step of the processing, assigning a label (e.g., "vehicle") to an object based on its descriptors is done?
(A) Segmentation
(B) Representation & description functions
(C) Object recognition
(D) Morphological processing
Correct option is C

19. What role does the segmentation play in image processing?
(A) Deals with extracting attributes that result in some quantitative information of interest
(B) Deals with techniques for reducing the storage required saving an image, or the bandwidth required transmitting it.
(C) Deals with partitioning an image into its constituent parts or objects.
(D) Deals with property in which images are subdivided successively into smaller regions
Correct option is C

20. What is the correct sequence of steps in image processing?

(A) Image acquisition->Image enhancement->Image restoration->Color image processing-
>Compression->Wavelets and multi resolution processing->Morphological processing-
>Segmentation->Representation & description->Object recognition

(B) Image acquisition->Image enhancement->Image restoration->Color image processing->Wavelets
and multi resolution processing->Compression->Morphological processing->Segmentation-
>Representation & description->Object recognition

(C) Image acquisition->Image enhancement->Color image processing->Image restoration->Wavelets
and multi resolution processing->Compression->Morphological processing->Segmentation-
>Representation & description->Object recognition

(D) Image acquisition->Image enhancement->Image restoration->Color image processing->Wavelets
and multi resolution processing->Compression->Morphological processing->Representation &
description->Segmentation->Object recognition

Correct option is B

21. To convert a continuous sensed data into Digital form, which of the following is required?
(A) Sampling
(B) Quantization

(C) Both Sampling and Quantization
(D) Neither Sampling nor Quantization
Correct option is C

22. To convert a continuous image f(x, y) to digital form, we have to sample the function in _____
(A) Coordinates
(B) Amplitude
(C) All of the mentioned
(D) None of these
Correct option is C

23. 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
Correct option is A

24. For a continuous image f(x, y), Quantization is defined as.
(A) Digitizing the coordinate values
(B) Digitizing the amplitude values
(C) All of the mentioned
(D) None of these
Correct option is B

25. How is sampling been done when an image is generated by a single sensing element combined with mechanical motion?
(A) The number of sensors in the strip defines the sampling limitations in one direction and Mechanical motion in the other direction.
(B) The number of sensors in the sensing array establishes the limits of sampling in both directions.
(C) The number of mechanical increments when the sensor is activated to collect data.
(D) None of these
Correct option is C

26. 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 these
Correct option is C

27. 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 negative integer
(C) M have to be negative and N have to be positive integer
(D) M have to be positive and N have to be negative integer
Correct option is A

28. A continuous image is digitised at _____ points.
(A) random
(B) vertex

(C) contour
(D) sampling
Correct option is D

29. The transition between continuous values of the image function and its digital equivalent is called
_____
(A) Sampling
(B) None of the Mentioned
(C) Rasterisation
(D) Quantisation
Correct option is D

30. Images quantised with insufficient brightness levels will lead to the occurrence of _____
(A) Pixillation
(B) Blurring
(C) False Contours
(D) None of the Mentioned
Correct option is C

31. The smallest discernible change in intensity level is called _____
(A) Intensity Resolution
(B) Contour
(C) Contrast
(D) Saturation
Correct option is A

Unit-II

1. What is the technique for a gray-level transformation function called, if the transformation would be to produce an image of higher contrast than the original by darkening the levels below some gray-level m and brightening the levels above m in the original image.
(A) Point processing
(B) Mask processing
(C) Point Processing
(D) Contrast processing
Correct option is D

2. Using gray-level transformation, the basic function linearity deals with which of the following transformation?.
(A) Negative and identity transformations
(B) Log and inverse log transformations
(C) nth root transformation
(D) None of these
Correct option is A

3. Using gray-level transformation, the basic function logrithmic deals with which of the following transformation?.
(A) Negative and identity transformations
(B) Log and inverse log transformations
(C) nth root transformation
(D) None of these
Correct option is B

4. If r be the gray-level of image before processing and s after processing then which expression defines the negative transformation, for the gray-level in the range [0, L - 1]?
(A) $s = cr^{\wedge}(y)$, c and y are positive constant
(B) $s = c(\log(1 + r))$, c is constant and $r > 0$
(C) $s = L - 1 - r$
(D) None of the above
Correct option is C

5. If r be the gray-level of image before processing and s after processing then which expression helps to obtain the negative of an image for the gray-level in the range [0, L - 1]?
(A) $s = cr^{\wedge}(y)$, c and y are positive constant
(B) $s = c(\log(1 + r))$, c is constant and $r >= 0$
(C) $s = L - 1 - r$
(D) None of the above
Correct option is B

6. . What is the sum of all components of a normalized histogram?
(A) 1
(B) -1
(C) 0
(D) None of the above
Correct option is A

7. . A low contrast image will have what kind of histogram when, the histogram, $h(rk) = nk$, rk the kth gray level and nk total pixels with gray level rk, is plotted nk versus rk?
(A) The histogram that covers wide range of gray scale and the distribution of pixel is approximately

uniform
(B) The histogram whose component are biased toward high side of gray scale
(C) The histogram that is narrow and centered toward the middle of gray scale
(D) None of the above
Correct option is C

8. The technique of Enhancement that has a specified Histogram processed image as result, is called?
(A) Histogram equalization
(B) Histogram linearization
(C) Histogram matching
(D) None of the above
Correct option is C

9. In neighborhood operations working is being done with the value of image pixel in the neighborhood and the corresponding value of a sub image that has same dimension as neighborhood. The subn image is referred as _____
(A) Mask
(B) Template
(C) Filter
(D) All of the above
Correct option is D

10. In linear spatial filtering, what is the pixel of the image under mask corresponding to the mask coefficient w (1, -1), assuming a 3*3 mask?
(A) f (x, -y)
(B) f (x+1, y)
(C) f (x, y-1)
(D) f (x+1, y-1)
Correct option is D

11. Which of the following method is/are used for padding the image?
(A) Adding rows and column of 0 or other constant gray level
(B) Simply replacing the rows or cloumns
(C) Both
(D) None of the above
Correct option is C

12. The output of a smoothing, linear spatial filtering is a _____ of the pixels contained in the neighbourhood of the filter mask.
(A) Dot product
(B) Product
(C) Average
(D) Sum
Correct option is C

13. Averaging filters is also known as
(A) Band pass
(B) High pass
(C) Low pass
(D) None of the above
Correct option is C

14. Which of the following is the primary objective of sharpening of an image?
(A) Increase the brightness of the image

(B) Blurring the image
(C) Highlight fine details in the image
(D) None of the above
Correct option is C

15. Sharpening is analogous to which of the following operations?
(A) To spatial integration
(B) To spatial differentiation
(C) Both A and B
(D) None of the above
Correct option is B

16. The principle objective of Sharpening, to highlight transitions is
(A) Intensity
(B) Composure
(C) Pixel density
(D) Brightness
Correct option is A

17. What is the name of the filter that multiplies two functions F(u, v) and H(u, v), where F has complex components too since is Fourier transformed function of f(x, y), in an order that each component of H multiplies both real and complex part of corresponding component in F?
(A) Unsharp mask filter
(B) Zero phase shift filter
(C) High boost filter
(D) None of the above
Correct option is B

18. What is the name of the filter that is used to turn the average value of a processed image zero?
(A) Notch filter
(B) Parametric filer
(C) Band pass filter
(D) Inverse filter
Correct option is A

19. Which of the following is/are considered as type(s) of low pass filters?
(A) Butterworth
(B) Ideal
(C) Gaussian
(D) All of the above
Correct option is D

20. In Homomorphic filtering which of the following operations is used to convert input image to discrete Fourier transformed function?
(A) Exponential operation
(B) Negative operation
(C) Logarithmic operation
(D) None of the above
Correct option is C

Unit-III

1. Degradation can be estimated by
(A) 2 ways
(B) 3 ways
(C) 4 ways
(D) 5 ways
Correct option is B

2. Power spectra and noise of undegraded image must be known as.
(A) Wiener filter
(B) Notch filter
(C) Band pass filter
(D) None of these
Correct option is A

3. . Degraded image is produced using degradation process and
(A) Pixels
(B) Destruction
(C) Coordinates
(D) Additive noise
Correct option is D

4. Degraded image is obtain in a
(A) Frequency domain
(B) Spatial domain
(C) Time domain
(D) Plane
Correct option is B

5. What is the Principle sources of noise arise during image ?
(A) Restoration
(B) Acquisition
(C) Destruction
(D) Degradation
Correct option is B

6. From where, Periodic noise arise
(A) Electric interference
(B) Gamma interference
(C) Beta interference
(D) None of the above
Correct option is

7. Which is not a type of noise ?
(A) Gamma noise
(B) Rayleigh noise
(C) Black noise
(D) Exponential noise
Correct option is C

8. Band reject filters are used where the noise components are usually
(A) Known
(B) Unknown

(C) Taken
(D) Reject
Correct option is A

9. SNR in noise stands for
(A) Signal to noise ratio
(B) Serial to noise ratio
(C) Signal to notch ratio
(D) Serial to notch ratio
Correct option is A

10. The approach to restoration is
(A) Spike filtering
(B) Black filtering
(C) Ranking
(D) Inverse filtering
Correct option is D

11. Restoration can't be done using
(A) Single projection
(B) Double projection
(C) Triple projection
(D) Octa projection
Correct option is A

12. What is the purpose of restoration ?
(A) To gain Pixels
(B) To gain original image
(C) To gain degraded image
(D) To gain coordinates
Correct option is B

13. Gaussian noise is referred to as
(A) Black noise
(B) White noise
(C) Red noise
(D) Normal noise
Correct option is D

14. Filter that performs opposite to band rejected filter is called
(A) Low pass filter
(B) Band pass filter
(C) High pass filter
(D) None of the above
Correct option is B

15. Contra harmonic mean filter generate
(A) Restored image
(B) Degraded image
(C) Original image
(D) Plane
Correct option is A

16. Which is not a type of mean filter ?
(A) Harmonic mean filter

(B) Arithmetic mean filter
(C) Geometrical mean filter
(D) Sequence mean filter
Correct option is D

17. Mean Filter reduce noise by using
(A) Acquisition
(B) Sharpening
(C) Restoration
(D) Blurring
Correct option is D

18. In geometric mean filters when alpha is equal to 0 then it works as:
(A) Notch filter
(B) Parametric filter
(C) Band pass filter
(D) Inverse filter
Correct option is B

19. Images usually gets corrupted during
(A) Restoration
(B) Acquisition
(C) Transmission
(D) Degradation
Correct option is C

20. Low frequency components are passed by:
(A) Max filter
(B) High pass filter
(C) Low pass filter
(D) All of the above
Correct option is C

Unit –IV

1. Segmentation is usually not perfect due to number of factors such as
   (A) Noise, Bad illumination
   (B) Object Contain several region
   (C) Due to boundary-filling
   (D) Due to closed contour
Correct option is A

2. What are the two approaches to segmentation?
   (A) Haar-like feature & 3-D rectangle approach
   (B) Region based segmentation & edge segmentation
   (C) Adaboost approach & edge segmentation
   (D) None of the above
Correct option is B

3. Which technique applies Edge segmentation
   (A) Heuristics operator
   (B) Canny operator
   (C) All of the above
   (D) None of the above
Correct option is C

4. 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 the above
   (D) None of the above
Correct option is A

5. Pixels are allocated to categories according to the range of values in which a pixel lies is called
   (A) Thresholding based segmentation
   (B) Edge- based segmentation
   (C) Region based segmentation
   (D) None of the above
Correct option is A

6. Edge element is associated with two components
   (A) Magnitude of the gradient
   (B) Region of the gradient
   (C) All of the above None of the above
   (D) None of the above
Correct option is

7. Laplacian is a
   (A) First order derivative filter
   (B) Sobel operator
   (C) Canny operator
   (D) Second order derivative filter

Correct option is D

8. A gradient operator for edge detection is
   (A) Roberts

   (B) Second order derivative

   (C) Zero crossing operator

   (D) None
Correct option is A

9. Image segmentation is the process of
   (A) Partitioning a digital image into multiple segment

   (B) Classify the image into number of objects

   (C) None of the above

   (D) All of the above

Correct option is A

10. Threshold based segmentation is based on
   (A) Number of clusters

   (B) Clip level

   (C) Number of regions

   (D) All of the above
Correct option is B

11. Which segmentation technique is based on clustering approaches?
   (A) K-means algorithm

   (B) Threshold based algorithm

   (C) Histogram based algorithm

   (D) Edge detection based algorithm
Correct option is A

12. In histogram based segmentation, we measure the
   (A) Color or intensity of objects

   (B) Region of objects
   (C) All of the above

   (D) None of the above
Correct option is A

13. Zero crossing operator use the following
   (A) First derivative

   (B) Second derivative

   (C) Sobel operator

   (D) Gaussian operator
Correct option is B

14. Classical edge detectors uses
   (A) Prewitt operator

   (B) Robert operator

   (C) Threshold operator

   (D) Gaussian operator
Correct option is A

15. Sobel edge detection uses
  (A) First derivative
  (B) Second derivative
  (C) All of the above
  (D) None of the above
Correct option is A

16. Advantages of canny operator
  (A) Simplicity of the method
  (B) None of the above
  (C) Performance is good, Using probability for finding error rate
  (D) All of the above
Correct option is A

17. Gray level image segmentation is generally based on two properties
  (A) Discontinuity and similarity
  (B) Continuity and similarity
  (C) Only similarity
  (D) None of the above
Correct option is A

18. Edge based segmentation algorithm is using
  (A) Discontinuity and similarity
  (B) Threshold value
  (C) None of the above
  (D) Edge linking and boundary
Correct option is D

19. For edge detection we use
  (A) Shape transition
  (B) Sign transition
  (C) Color transition
  (D) Intensity transition
Correct option is B

20. Grey level thresholding is a generalization of
  (A) Edge detection
  (B) Binary thresholding
  (C) Both of the above
  (D) None of the above
Correct option is B

21. Region growing is a ……………image segmentation approach
  (A) bottom-up
  (B) Top down
  (C) All of the above
  (D) None of the above
Correct option is A

22. Example of Clustering Methods is

    (A) Level Set Methods

    (B) Graph Partitioning Methods

    (C) Watershed Transformation

    (D) Neural Networks Segmentation

Correct option is A

23. Example of Histogram-Based Methods is

    (A) Level Set Methods

    (B) Graph Partitioning Methods

    (C) Watershed Transformation

    (D) Neural Networks Segmentation

Correct option is B

24. Example of Edge Detection Methods is

    (A) Neural Networks Segmentation

    (B) Graph Partitioning Methods

    (C) Watershed Transformation

    (D) Multi-scale Segmentation

 Correct option is C

25. Example of Region Growing Methods is

    (A) Level Set Methods

    (B) Graph Partitioning Methods

    (C) Watershed Transformation

    (D) Neural Networks Segmentation

Correct option is D

26. Involve active shape and appearance models, active contours and deformable templates is called

    (A) Model based Segmentation

    (B) Semi-automatic Segmentation

    (C) All of the above

    (D) None of the above

Correct option is A

27. Techniques like Livewire or Intelligent Scissors are used in

    (A) Model based Segmentation

    (B) Semi-automatic Segmentation

    (C) Threshold based Segmentation

    (D) None of the above

Correct option is B

28. Edge detection has fundamental.
(A) 2 points
(B) 3 points
(C) 4 points
(D) None of these
Correct option is B

29. For diagonal edge detection we use
(A) 1D mask
(B) 2D mask
(C) 3D mask
(D) 4D mask
Correct option is B

30.Thresholding is the example of
(A) Continuity
(B) Similarity
(C) Recognition
(D) Discontinuity
Correct option is B

31. In the sense of predicate two regions of the image must be
(A) Same
(B) Different
(C) Overlapped
(D) Disjoin
Correct option is B

32. First derivatives in image segmentation produces
(A) Thick edge
(B) Thin edge
(C) Fine edge
(D) None of the above
Correct option is A

33. Thresholding formulation measures difference between
(A) 2 neighbors
(B) 4 neighbors
(C) 6 neighbors
(D) 8 neighbors
Correct option is D

34 . Segmentation is difficult for images that are
(A) Trivial
(B) Non trivial
(C) Illuminated
(D) Low resolution
Correct option is B

35 . Segmentation is a process of
(A) Low level process
(B) Edge level process
(C) Mid level process
(D) High level process
Correct option is C

36. Segmentation algorithms depends on intensity values'
(A) Discontinuity
(B) Similarity
(C) Both A and B
(D) None of the above
Correct option is C

37. When the desired object is detected segmentation should be
(A) Paused
(B) Stopped
(C) Cleared
(D) Cntinued
Correct option is B

38. First derivatives in image segmentation produces
(A) Thin edge
(B) Thick edge
(C) Fine edge
(D) Rough edge
Correct option is B

39. Tuple is referred to as
(A) 1D vector
(B) 2D vector
(C) 3D vector
(D) 4D vector
Correct option is B

40. Sets in morphology are referred to as image's
(A) Objects
(B) Frames
(C) Pixels
(D) None of the above
Correct option is A

41. SE in the morphology process is called
(A) Software engineering
(B) Structuring elements
(C) Structure eliminate
(D) None of the above
Correct option is B

42. Reflection of the rectangular SE is always
(A) Square
(B) Translated
(C) Symmetric
(D) Asymmetric
Correct option is C

43. Digital function derivatives are defined as
(A) Addition
(B) Division
(C) Differences
(D) Multiplication

Correct option is C

44. Examples of similarity approach in segmentation are
(A) Region growing
(B) Region splitting
(C) Extraction

(D) Both A and B
Correct option is D

45. Segmentation is a process of
(A) Low level process
(B) High level process
(C) Edge level process
(D) Mid level process

Correct option is D

46. Accuracy of image segmentation can be improved by the type of:
(A) Image
(B) Division
(C) Processes
(D) Sensors
Correct option is D

Unit-V

1. Compressed image can be recover back by
(A) Image contrast
(B) Image enhancement
(C) Image equalization
(D) Image decomposition
Correct option is D

2. What is the meaning of information ?
(A) Data
(B) Raw data
(C) Meaningful data
(D) None of these

Correct option is C

3. Sequence of digital video is
(A) Frames
(B) Pixels
(C) Coordinates
(D) Matrix
Correct option is A

4. What would you use compression for
(A) Making an image file smaller
(B) Modifying an image
(C) Both
(D) None of the above

Correct option is A

5. Which of the following algorithms is the best approach for solving Huffman codes?
(A) Brute force algorithm
(B) Greedy algorithm
(C) Exhaustive search
(D) Divide and conquer algorithm
Correct option is B

6. What is the running time of the Huffman encoding algorithm?
(A) $O(\log C)$
(B) $O(C)$
(C) $O(C \log C)$
(D) $O(N \log C)$
Correct option is C

7. Digitizing the image intensity amplitude is called
(A) Framing
(B) Sampling
(C) Quantization
(D) None of the above
Correct option is C

8. Image compression comprised of

(A) Encoder
(B) Decoder
(C) Frames
(D) Both A and B
Correct option is D

9. What is the full form of RLE ?
(A) Run line encoder
(B) Run length electrode
(C) Run length encoding
(D) None of the above
Correct option is C

10. Which bitmap file format support the Run length encoding ?
(A) BMP
(B) PCX
(C) TIF
(D) All of the above
Correct option is D

11. In Huffman coding, data in a tree always occur?
(A) Roots
(B) Leaves
(C) Left sub trees
(D) Right sub trees

Correct option is B

12. Which of the following of a boundary is defined as the line perpendicular to the major axis?
(A) Minor axis
(B) Median axis
(C) Equidistant axis
(D) Equilateral axis
Correct option is C

13. The order of shape number for a closed boundary is:
(A) Even
(B) Odd
(C) 1
(D) Any positive value
Correct option is A

14. Which of the following techniques of boundary descriptions have the physical interpretation of boundary shape
(A) Laplace transform
(B) Fourier transform
(C) Statistical moments
(D) Curvature

Correct option is C

15. What does the total number of pixels in the region defines?
(A) Area
(B) Intensity

(C) Brightness
(D) None of the above
Correct option is A

16. For which of the following regions, compactness is minimal?
(A) Square
(B) Irregular
(C) Disk
(D) Rectangle

Correct option is C

17. On which of the following operation of an image, the topology of the region changes?
(A) Rotation
(B) Folding
(C) Stretching
(D) Change in distance measure
Correct option is B

18. Which of the following techniques is based on the Fourier transform?
(A) Spectral
(B) Structural
(C) Topological
(D) Statistical
Correct option is A

19. Based on the 4-directional code, the first difference of smallest magnitude is called as:
(A) Chain number
(B) Difference
(C) Difference number
(D) Shape number
Correct option is D

20. What is the unit of compactness of a region?:
(A) Meter
(B) Meter2
(C) Meter-1
(D) No units
Correct option is D

21. In image MxN, N is
    (A) rows
    (B) column
    (C) level
    (D) intensity
Correct option is B

22. Histogram equalization refers to image
    (A) sampling
    (B) quantization
    (C) framing
    (D) normalization
Correct option is D

23. HD television are

(A) low definition

(B) high definition

(C) enhanced

(D) low quality

Correct option is D

24. Inferior image is the image having

(A) low definition

(B) high definition

(C) intensity

(D) coordinates

Correct option is D

25. Digitizing the coordinates of the image is called

(A) sampling

(B) quantization

(C) framing

(D) Both a and b

Correct option is A

26. Source of the event itself called

(A) zero-memory source

(B) nonzero-memory source

(C) zero source

(D) memory source

Correct option is A

27. Decoder is used for

(A) image enhancement

(B) image compression

(C) image decompression

(D) image equalization

Correct option is C

28. Replication of the pixels is called

(A) coding redundancy

(B) spatial redundancy

(C) temporal redundancy

(D) Both b and c

Correct option is D

29. nformation ignored the human eye is the

(A) coding redundancy

(B) spatial redundancy

(C) temporal redundancy

(D) dirrelevant info

Correct option is D

30 Error of the image is referred to as

(A) pixels

(B) matrix

(C) frames

(D) dnoise

Correct option is D

31. Formula pr = n/MN represents the

   (A) coding redundancy

   (B) spatial redundancy

   (C) temporal redundancy

   (D) irrelevant info

Correct option is A

32. In the formula 1-(1/c), c is the

   (A) complex ratio

   (B) compression ratio

   (C) constant

   (D) condition

 Correct option is B

33. Standard rate of showing frames in a video per second are

   (A) 10

   (B) 20

   (C) 25

   (D) 30

Correct option is D

34. Reducing the data required referred to

   (A) image enhancement

   (B) image compression

   (C) image contrast

   (D) image equalization

Correct option is B

35. One that is not a type of data redundancy is

   (A) coding

   (B) spatial

   (C) temporal

   (D) facsimile

Correct option is D

36. Transforming the difference between adjacent pixels is called

   (A) mapping

   (B) image compression

   (C) image watermarking

   (D) image equalization

Correct option is A

37. Inserting data on to the images is called

  (A) image enhancement
  (B) image compression
  (C) image watermarking
  (D) image equalization

Correct option is : C

38. Shannons theorem is also called

  (A) noiseless coding theorem
  (B) noisy coding theorem
  (C) coding theorem
  (D) noiseless theorem

Correct option is : A

39. A codec is capable of
  (A) encoding
  (B) decoding
  (C) framing
  (D) Both a and b
Correct option is : D

40. Encoder is used for

  (A) image enhancement
  (B) image compression
  (C) image decompression
  (D) image equalization

Correct option is : B

Practice Questions Set-1
(Option In bold font is Answer)

1. A Grid of square which contains a single color is called
   (A) Image
   (B) Pixel value
   (C) **Pixel**
   (D) Color
2. A color Image have
   (A) 2 value per pixel
   (B) **3 value per pixel**
   (C) 4 value per pixel
   (D) 1 value per pixel
3. A monochrome image have
   (A) 8 value per pixel
   (B) 4 value per pixel
   (C) **1 value per pixel**
   (D) 3 value per pixel
4. A Fourier transform of a product is equal to
   (A) **Correlation of Fourier transform**
   (B) Convolution of Fourier transform
   (C) Both of the above
   (D) None of the above
5. Contrast stretching is
   (A) Increasing the dynamic range if gray level
   (B) **Decreasing the dynamic range of gray level**
   (C) Both of the above
   (D) None of the above
6. Spatial domain refers to
   (A) Manipulations on whole image
   (B) **Direct manipulation of image pixel**
   (C) Modifications on Fourier transform of an image
   (D) Contrast shrinking
7. The piecewise linear transformation function is
   (A) Linear
   (B) **Complex**
   (C) Nonlinear
   (D) Constant
8. Histogram processing works in
   (A) **Frequency domain**
   (B) Spatial domain
   (C) Both of the above
   (D) None of the above
9. To improve the intensity and contrast of an image
   (A) Mean of variance are measured
   (B) Mean of median are measured
   (C) **Both of the above**

(D) None of the above

10. The local mean is measured by

    (A) The average gray level in an image

    (B) **Average gray level in neighborhood**

    (C) Both of the above

    (D) None of the above

11. Salt and pepper noise contains

    (A) White spots in dark regions

    (B) Dark spots in white regions

    (C) **Both of the above**

    (D) None of the above.

12. The operation is used for masking is

    (A) AND

    (B) OR

    (C) **Both of the above**

    (D) None of the above

13. Gray level enhancement improve

    (A) Contrast

    (B) Brightness

    (C) **Both of the above**

    (D) None of the above

14. A contrast reversal transforms creates

    (A) Color image

    (B) **Negative image**

    (C) Black and white image

    (D) Gray image

15. Two corners are said to be co-related if cross correlation coefficient is

    (A) **greater than a given threshold value**

    (B) Less than a given threshold value

    (C) Equal to a given threshold value

    (D) None of the above

16. Split Bregman algorithm is a suitable technique in solving convex minimization problems which are

    (A) **Non-differentiable in nature**

    (B) Differentiable in nature

    (C) Both of the above

    (D) None of the above

17. Self-organizing map(SOM) is used for

    (A) **Restoration**

    (B) Segmentation

    (C) Classification

    (D) Enhancement

18. Blurring is a form of

    (A) **Bandwidth reduction of an image**

    (B) Bandwidth enhancement of an image

    (C) Both of the above

    (D) None of the above

19. Blind image de-convolution is

(A) **Combination of blur identification and image restoration**

(B) Combination of Segmentation and classification

(C) Combination of blur and none blur image

(D) All of the above

20. Inverse filter requires only

(A) Non-blur PSF

(B) **Blur PSF**

(C) Both of the above

(D) None of the above

21. Least Squares Filters are

(A) More noise sensitive

(B) **Less noise sensitive**

(C) Both of the above

(D) None of the above

22. Spatial domain convolution are preferred when

(A) Dimension of image stored are very small

(B) **Dimension of image stored are very large**

(C) Both of the above

(D) None of the above

23. In Spatial domain boundary value problem is solve by

(A) **Extrapolating the available image data**

(B) Interpolating the available image data

(C) Both of the above

(D) Non-of the above

24. Maximum likelihood estimation is a good technique for parameter estimation where

(A) **stochastic knowledge is available**

(B) **no stochastic knowledge is available**

(C) both of the above

(D) none of the above

25. Discrete cosine transform (DCT) applied to predict error on

(A) **8×8 pixels**

(B) 4×4 pixels

(C) 2×2 pixels

(D) 3×3 pixels

26. The transition between continuous values of the image function and its digital equivalent is called:

(A) **Quantisation**

(B) Sampling

(C) Rasterisation

(D) None of the Mentioned

27. The smallest discernible change in intensity level is called:

(A) **Intensity Resolution**

(B) Contour

(C) Saturation

(D) Contrast

28. 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

30 Median filter technique is the best way to denoise this image

    (A) **TRUE**

    (B) FALSE

31. Median filter technique helps reduce noise to a good enough extent.

Which of the following is a correct way to sharpen an image?

A)

    1.   Convolve the image with identity matrix

    2.   Subtract this resulting image from the original

    3.   Add this subtracted result back to the original image

B)

    1.   **Smooth the image**

    2.   **Subtract this smoothed image from the original**

    3.   **Add this subtracted result back to the original image**

C)

    1.   Smooth the image

    2.   Add this smoothed image back to the original image

D) None of the above

32. Convolution in spatial domain is multiplication in

    (A) **frequency domain**

    (B) time domain

    (C) spatial domain

    (D) plane

33. PDF in image processing is called

    (A) probability degraded function

    (B) **probability density function**

    (C) probabilistic degraded function

    (D) probabilistic density function

34. In wiener filtering it is assumed that noise and image are

    (A) different

    (B) homogenous

    (C) correlated

    (D) **uncorrelated**

35. Mean filters reduce noise using

    (A) sharpening

    (B) **blurring**

    (C) restoration

    (D) acquisition

36. Square of standard deviation is called

    (A) **variance**

    (B) noise

    (C) restoration

    (D) power

37. The inner most membrane of the human eye is
    (A) Blind Spot
    (B) Sclera
    (C) Choroid
    (D) **Retina**

38. Which part of an eye serve to a general, overall picture of the field of view.
    (A) Cones
    (B) **Rods**
    (C) Retina
    (D) All of the Mentioned

39. How is the expression represented for the normalized histogram?
    (A) $p(r\_k)=n\_k$
    (B) **$p(r\_k)=n\_k/n$**
    (C) $p(r\_k)=nn\_k$
    (D) $p(r\_k)=n/n\_k$

40. In a dark image, the components of histogram are concentrated on which side of the grey scale?
    (A) High
    (B) Medium
    (C) **Low**
    (D) Evenly distributed

41. 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

42. JPEG is a lossy image compression technique
    (A) **TRUE**
    (B) FALSE

43. The reason for JPEG being a lossy compression technique is because of the use of quantization.
Periodic noises arise from
A) **electrical interference**
B) gamma interference
C) beta interference
D) mechanical interference

44. High frequency components are passed by
A) lowpass filter
B) bandpass filter
C) **highpass filter**
D) max filter

45. Order statistics filters are filters whose responses are based on
A) additive noise

B) probability density function

C) pixels

D) ranking

46. The transition between continuous values of the image function and its digital equivalent is called_____

Solution- Quantization

47. _____is a color attribute that describes a pure color?

Solution- Saturation

48. The ratio of increment of illumination to background of illumination is called_____

Solution-Weber Ratio

49. A _____ is required for conversion from one domain into another.

Solution- Transform

50. Principle sources of noise arise during image_____

Solution- Acquisition

51. If S is a subset of pixels, pixels p and q are said to be _____ if there exists a path between them consisting of pixels entirely in S.

Solution-Connected

52._____is used to reduce the data storage and bandwidth.

Solution-Compression

53. _____is performed by applying erosion followed by dilation.

Solution-Opening

54. Salt and pepper noise also referred to term ------------

Solution-Spike Noise

55._____compression methods result in some loss of quality in the compressed images.

Solution-Lossy

56. The procedure done on a digital image to alter the values of its individual pixels is

    A) Neighbourhood Operations

B) **Image Registration**
C) Geometric Spacial Transformation
D) Single Pixel Operation

57.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 negative integer
C) M have to be negative and N have to be positive integer
D) M have to be positive and N have to be negative integer

58.What is the quantity that is used to measure the total amount of energy flowing from the light source?

A) Brightness
B) Intensity
C) Luminence
D) **Radiance**

59. The term, Curvature is defined as:

A) Rate of change of area
B) **Rate of change of slope**
C) Slope
D) Rate of change of diameter

60The order of shape number for a closed boundary is:

A) Odd
B) **Even**
C) 1
D) Any positive value

61. Inverse filter requires only

A) Non-blur PSF
B) **Blur PSF**
C) Both of the above
D) None of the above

62. Salt and pepper noise contains

A) White spots in dark regions
B) Dark spots in white regions
C) **Both of the above**
D) None of the above.

63. The Image sharpening in frequency domain can be achieved by which of the following method(s)?

A) Attenuating the high frequency components

B) Attenuating the low-frequency components
C) All of the mentioned
D) None of the mentioned

64. When is the contrast stretching transformation a thresholding function, for r and s as gray- value of image before and after processing respectively?

A) $r1 = s1$ and $r2 = s2$
B) $r1 = r2$, $s1 = 0$ and $s2 = L – 1$, L is the max gray value allowed
C) $r1 = 1$ and $r2 = 0$
D) None of the mentioned

65. Piecewise Linear Transformation function involves which of the following?

A) Bit-plane slicing
B) Intensity level slicing
C) Contrast stretching
D) All of the Mentioned

Practice Set-2

1) Of the following, _____ has the maximum frequency.
 a) UV Rays
 b) Gamma Rays
 c) Microwaves
 d) Radio Waves

Answer: b
 Explanation: Gamma Rays come first in the electromagnetic spectrum sorted in the decreasing order of frequency.

2) In the Visible spectrum the _____ colour has the maximum wavelength.
 a) Violet
 b) Blue
 c) Red
 d) Yellow

Answer: c
 Explanation: Red is towards the right in the electromagnetic spectrum sorted in the increasing order of wavelength.

3) Wavelength and frequency are related as : (c = speed of light)
 a) c = wavelength / frequency
 b) frequency = wavelength / c
 c) wavelength = c * frequency
 d) c = wavelength * frequency

Answer: d
 Explanation: It is usually written as wavelength = c / frequency.

4) Electromagnetic waves can be visualised as a
 a) sine wave
 b) cosine wave
 c) tangential wave
 d) None of the above

Answer: a
 Explanation: Electromagnetic waves are visualised as sinusoidal wave.

5) How is radiance measured?
 a) lumens
 b) watts
 c) armstrong
 d) hertz

Answer: b
 Explanation: Radiance is the total amount of energy that flows from the light source and is measured in Watts.

6) Which of the following is used for chest and dental scans?
 a) Hard X-Rays
 b) Soft X-Rays
 c) Radio waves
 d) Infrared Rays

Answer: b
Explanation: Soft X-Rays (low energy) are used for dental and chest scans.

7) Which of the following is impractical to measure?
a) Frequency
b) Radiance
c) Luminance
d) Brightness

Answer: d
Explanation: Brightness is subjective descriptor of light perception that is impossible to measure.

8) Massless particle containing a certain amount of energy is called
a) Photon
b) Shell
c) Electron
d) None of these

Answer: a
Explanation: Each bundle of massless energy is called a Photon.

9) What do you mean by achromatic light?
a) Chromatic light
b) Monochromatic light
c) Infrared light
d) Invisible light

Answer: b
Explanation: Achromatic light is also called monochromatic light.(Light void of color)

10) Which of the following embodies the achromatic notion of intensity?
a) Luminance
b) Brightness
c) Frequency
d) Radiance

Answer: b
Explanation: Brightness embodies the achromatic notion of intensity and is a key factor in describing color sensation.

11) Which of the following is a receptor in the retina of human eye?
a) Rods
b) Cones
c) Rods and Cones
d) Neither Rods nor Cones

Answer: c
Explanation: Rods are long slender receptors while cones are shorter and thicker receptors.

12) How is image formation in the eye different from that in a photographic camera
a) No difference
b) Variable focal length
c) Varying distance between lens and imaging plane
d) Fixed focal length

Answer: b
Explanation: Fibers in ciliary body vary shape of the lens thereby varying its focal length.

13) Range of light intensity levels to which the human eye can adapt (in Log of Intensity-mL)
 a) 10-6 to 10-4
 b) 104 to 106
 c) 10-6 to 104
 d) 10-5 to 105

Answer: c
Explanation: Range of light intensity to which human eye can adapt is enormous and about the order 1010 from 10-6 to 104.

14) What is subjective brightness?
 a) Related to intensity
 b) Related to brightness
 c) Related to image perception
 d) Related to image formation

Answer: a
Explanation: It is the intensity as perceived by the human eye.

15) 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

Answer: a
Explanation: The human eye a wide dynamic range by changing the eye's overall sensitivity and this is called brightness adaptation.

16) The inner most membrane of the human eye is
 a) Blind Spot
 b) Sclera
 c) Choroid
 d) Retina

Answer: d
Explanation: Retina is the innermost membrane of the human eye.

17) What is the function of Iris?
 a) Source of nutrition
 b) Detect color
 c) Varies focal length
 d) Control amount of light

Answer: d
Explanation: Iris is responsible for controlling the amount of light that enters the human eye.

18) _____ serve to a general, overall picture of the field of view.
 a) Cones
 b) Rods
 c) Retina

d) All of the Mentioned

Answer: b
Explanation: Rods produce an overall picture of the field of view.

19) Ratio of number of rods to the number of cones is _____
a) 1:20
b) 1:2
c) 1:1
d) 1:5

Answer: a
Explanation: No of rods: 6 to 7 million, No of rods: 75 to 150.

20) The absence of receptors is in the retinal area called _____
a) Lens
b) Ciliary body
c) Blind spot
d) Fovea

Answer: c
Explanation: Except the blind spot, receptors are radially distributed.

21) The most familiar single sensor used for Image Acquisition is
a) Microdensitometer
b) Photodiode
c) CMOS
d) None of the Mentioned

Answer: b
Explanation: Photodiode is the most commonly used single sensor made up of silicon materials.

22) A geometry consisting of in-line arrangement of sensors for image acquisition
a) A photodiode
b) Sensor strips
c) Sensor arrays
d) CMOS

Answer: b
Explanation: Sensor strips are very common next to single sensor and use in-line arrangement.

23) CAT in imaging stands for
a) Computer Aided Telegraphy
b) Computer Aided Tomography
c) Computerised Axial Telegraphy
d) Computerised Axial Tomography

Answer: d
Explanation: Industrial Computerised Axial Tomography is based on image acquisition using sensor strips.

24) The section of the real plane spanned by the coordinates of an image is called the _____
a) Spacial Domain
b) Coordinate Axes
c) Plane of Symmetry

d) None of the Mentioned

Answer: a
 Explanation: The section of the real plane spanned by the coordinates of an image is called the Spacial Domain, with the x and y coordinates referred to as Spacial coordinates.

25) The difference is intensity between the highest and the lowest intensity levels in an image is _____
 a) Noise
 b) Saturation
 c) Contrast
 d) Brightness

Answer: c
 Explanation: Contrast is the measure of the difference is intensity between the highest and the lowest intensity levels in an image.

26) _____ is the effect caused by the use of an insufficient number of intensity levels in smooth areas of a digital image.
 a) Gaussian smooth
 b) Contouring
 c) False Contouring
 d) Interpolation

Answer: c
 Explanation: It is called so because the ridges resemble the contours of a map.

27) The process of using known data to estimate values at unknown locations is called
 a) Acquisition
 b) Interpolation
 c) Pixelation
 d) None of the Mentioned

Answer: b
 Explanation: Interpolation is the process used to estimate unknown locations. It is applied in all image resampling methods.

28) Which of the following is NOT an application of Image Multiplication?
 a) Shading Correction
 b) Masking
 c) Pixelation
 d) Region of Interest operations

Answer: c
 Explanation: Because Pixelation deals with enlargement of pixels.

29) The procedure done on a digital image to alter the values of its individual pixels is
 a)Neighbourhood Operations
 b) Image Registration
 c) Geometric Spacial Transformation
 d) Single Pixel Operation

Answer: d
 Explanation: It is expressed as a transformation function T, of the form s=T(z) , where z is the intensity.

30) In Geometric Spacial Transformation, points whose locations are known precisely in input and reference images.
 a) Tie points
 b) Réseau points
 c) Known points
 d) Key-points

Answer: a
 Explanation: Tie points, also called Control points are points whose locations are known precisely in input and reference images.

31) A continuous image is digitised at _____ points.
 a) random
 b) vertex
 c) contour
 d) sampling

Answer: d
 Explanation: The sampling points are ordered in the plane and their relation is called a Grid.

32) The transition between continuous values of the image function and its digital equivalent is called _____
 a) Quantisation
 b) Sampling
 c) Rasterisation
 d) None of the Mentioned

Answer: a
 Explanation: The transition between continuous values of the image function and its digital equivalent is called Quantisation.

33) Images quantised with insufficient brightness levels will lead to the occurrence of _____
 a) Pixillation
 b) Blurring
 c) False Contours
 d) None of the Mentioned

Answer: c
 Explanation: This effect arises when the number brightness levels is lower that which the human eye can distinguish.

34) The smallest discernible change in intensity level is called _____
 a) Intensity Resolution
 b) Contour
 c) Saturation
 d) Contrast

Answer: a
 Explanation: Number of bits used to quantise intensity of an image is called intensity resolution.

35) What is the tool used in tasks such as zooming, shrinking, rotating, etc.?
 a) Sampling
 b) Interpolation
 c) Filters

d) None of the Mentioned

Answer: b
 Explanation: Interpolation is the basic tool used for zooming, shrinking, rotating, etc.

36) The type of Interpolation where for each new location the intensity of the immediate pixel is assigned is _____
 a) bicubic interpolation
 b) cubic interpolation
 c) bilinear interpolation
 d) nearest neighbour interpolation

Answer: d
 Explanation: Its called as Nearest Neighbour Interpolation since for each new location the intensity of the next neighbouring pixel is assigned.

37) The type of Interpolation where the intensity of the FOUR neighbouring pixels is used to obtain intensity a new location is called _____
 a) cubic interpolation
 b) nearest neighbour interpolation
 c) bilinear interpolation
 d) bicubic interpolation

Answer: b
 Explanation: Bilinear interpolation is where the FOUR neighbouring pixels is used to estimate intensity for a new location.

38) Dynamic range of imaging system is a ratio where the upper limit is determined by
 a) Saturation
 b) Noise
 c) Brightness
 d) Contrast

Answer: a
 Explanation: Saturation is taken as the Numerator.

39) For Dynamic range ratio the lower limit is determined by
 a) Saturation
 b) Brightness
 c) Noise
 d) Contrast

Answer: c
 Explanation: Noise is taken as the Denominator.

40) Quantitatively, spatial resolution cannot be represented in which of the following ways
 a) line pairs
 b) pixels
 c) dots
 d) None of the Mentioned

Answer: d
 Explanation: All the options can be used to represent spatial resolution.

41) In 4-neighbours of a pixel p, how far are each of the neighbours located from p?

a) one pixel apart
b) four pixels apart
c) alternating pixels
d) None of the Mentioned

Answer: a
Explanation: Each pixel is a unit distance apart from the pixel p.

42) If S is a subset of pixels, pixels p and q are said to be _____ if there exists a path between them consisting of pixels entirely in S.
a) continuous
b) ambiguous
c) connected
d) None of the Mentioned

Answer: c
Explanation: pixels p and q are said to be connected if there exists a path between them consisting of pixels entirely in S.

43) If R is a subset of pixels, we call R a _____ of the image if R is a connected set.
a) Disjoint
b) Region
c) Closed
d) Adjacent

Answer: b
Explanation: R is called a Region of the image.

44) Two regions are said to be _____ if their union forms a connected set.
a) Adjacent
b) Disjoint
c) Closed
d) None of the Mentioned

Answer: a
Explanation: The regions are said to be Adjacent to each other.

45) If an image contains K disjoint regions, what does the union of all the regions represent?
a) Background
b) Foreground
c) Outer Border
d) Inner Border

Answer: b
Explanation: The union of all regions is called Foreground and its complement is called the Background.

46) For a region R, the set of points that are adjacent to the complement of R is called as _____
a) Boundary
b) Border
c) Contour
d) All of the Mentioned

Answer: d

Explanation: The words boundary, border and contour mean the same set.

47) The distance between pixels p and q, the pixels have a distance less than or equal to some value of radius r centred at (x,y) is called :
 a) Euclidean distance
 b) City-Block distance
 c) Chessboard distance
 d) None of the Mentioned

Answer: a
 Explanation: Euclidean distance is measured using a radius from a defined centre.

48) The distance between pixels p and q, the pixels have a distance less than or equal to some value of radius r, form a diamond centred at (x,y) is called :
 a) Euclidean distance
 b) Chessboard distance
 c) City-Block distance
 d) None of the Mentioned

Answer: c
 Explanation: Formation of a diamond is measured as City-Block distance.

49) The distance between pixels p and q, the pixels have a distance less than or equal to some value of radius r, form a square centred at (x,y) is called :
 a) Euclidean distance
 b) Chessboard distance
 c) City-Block distance
 d) None of the Mentioned

Answer: b
 Explanation: Distance measured by forming a square around the centre is called Chessboard distance.

50) Which of the following is NOT is not a type of Adjacency?
 a) 4-Adjacency
 b) 8-Adjacency
 c) m-Adjacency
 d) None of the Mentioned

Answer: d
 Explanation: All the mentioned adjacency types are valid.

51) How is negative of an image obtained with intensity levels [0,L-1] with "r" and "s" being pixel values?
 a) $s = L - 1 + r$
 b) $s = L - 1 - r$
 c) $s = L + 1 + r$
 d) $s = L + 1 + r$

Answer: b
 Explanation: The negative is obtained using $s = L - 1 + r$.

52) The general form of log transformations is _____.

 a) $s = c.\log(1 + r)$
 b) $s = c + \log(1 + r)$

c) s = c.log(1 − r)
d) s = c-log(1 − r)

Answer: a
Explanation: s = c.log(1 + r) is the log transformation.

53) Power-law transformations has the basic form of _____, where c and ? are constants.
a) s = c + r?
b) s = c − r?
c) s = c * r?
d) s = c / r.?

Answer: c
Explanation: s = c * r? is called the Power-law transformation.

54) For what value of the output must the Power-law transformation account for offset?
a) No offset needed
b) All values
c) One
d) Zero

Answer: d
Explanation: When the output is Zero, an offset is necessary.

55) What is Gamma Correction?
a) A Power-law response phenomenon
b) Inverted Intensity curve
c) Light brightness variation
d) None of the Mentioned

Answer: a
Explanation: The exponent in Power-law is called gamma and the process used to correct the response of Power-law transformation is called Gamma Correction.

56) Which process expands the range of intensity levels in an image so that it spans the full intensity range of the display?
a) Shading correction
b) Contrast sketching
c) Gamma correction
d) None of the Mentioned

Answer: b
Explanation: Contrast sketching is the process used to expand intensity levels in an image.

57) Highlighting a specific range of intensities of an image is called _____.
a) Intensity Matching
b) Intensity Highlighting
c) Intensity Slicing
d) None of the Mentioned

Answer: c
Explanation: Highlighting a specific range of intensities of an image is called Intensity Slicing.

58) Highlighting the contribution made to total image by specific bits instead of highlighting intensity-level changes is called _____.
 a) Intensity Highlighting
 b) Byte-Slicing
 c) Bit-plane slicing
 d) None of the Mentioned

Answer: c
 Explanation: It is called Bit-plane slicing.

59) Which of the following involves reversing the intensity levels of an image?
 a) Log Transformations
 b) Piecewise Linear Transformations
 c) Image Negatives
 d) None of the Mentioned.

Answer: c
 Explanation: Image negatives use reversing intensity levels.

60) Piecewise Linear Transformation function involves which of the following?
 a) Bit-plane slicing
 b) Intensity level slicing
 c) Contrast stretching
 d) All of the Mentioned

Answer: d
 Explanation: Piecewise Linear Transformation function involves all the mentioned functions

61) What is the basis for numerous spatial domain processing techniques?
 a) Transformations
 b) Scaling
 c) Histogram
 d) None of the Mentioned

Answer: c
 Explanation: Histogram is the basis for numerous spatial domain processing techniques.

62) In _____ image we notice that the components of histogram are concentrated on the low side on intensity scale.
 a) bright
 b) dark
 c) colourful
 d) All of the Mentioned

Answer: b
 Explanation: Only in dark images, we notice that the components of histogram are concentrated on the low side on intensity scale.

63) What is Histogram Equalisation also called as?
 a) Histogram Matching
 b) Image Enhancement
 c) Histogram linearisation
 d) None of the Mentioned

Answer: c

Explanation: Histogram Linearisation is also known as Histogram Equalisation.

64) What is Histogram Matching also called as?
 a) Histogram Equalisation
 b) Histogram Specification
 c) Histogram linearisation
 d) None of the Mentioned

Answer: b
 Explanation: Histogram Specification is also known as Histogram Matching.

65) Histogram Equalisation is mainly used for _____.
 a) Image enhancement
 b) Blurring
 c) Contrast adjustment
 d) None of the Mentioned

Answer: a
 Explanation: It is mainly used for Enhancement of usually dark images.

66) To reduce computation if one utilises non-overlapping regions, it usually produces _____ effect.
 a) Dimming
 b) Blurred
 c) Blocky
 d) None of the Mentioned

Answer: c
 Explanation: Utilising non-overlapping regions usually produces "Blocky" effect.

67) What does SEM stands for?
 a) Scanning Electronic Machine
 b) Self Electronic Machine
 c) Scanning Electron Microscope
 d) Scanning Electric Machine

Answer: c
 Explanation: SEM stands for Scanning Electron Microscope.

68) The type of Histogram Processing in which pixels are modified based on the intensity distribution of the image is called _____.
 a) Intensive
 b) Local
 c) Global
 d) Random

Answer: c
 Explanation: It is called Global Histogram Processing.

69) Which type of Histogram Processing is suited for minute detailed enhancements?

 a) Intensive
 b) Local
 c) Global
 d) Random

Answer: b
Explanation: Local Histogram Processing is used.

70) In uniform PDF, the expansion of PDF is _____.
 a) Portable Document Format
 b) Post Derivation Function
 c) Previously Derived Function
 d) Probability Density Function

Answer: d
Explanation: PDF stands for Probability Density Function.

71) What is accepting or rejecting certain frequency components called as?
 a) Filtering
 b) Eliminating
 c) Slicing
 d) None of the Mentioned

Answer: a
Explanation: Filtering is the process of accepting or rejecting certain frequency components.

72) A filter that passes low frequencies is _____.
 a) Band pass filter
 b) High pass filter
 c) Low pass filter
 d) None of the Mentioned

Answer: c
Explanation: Low pass filter passes low frequencies.

73) What is the process of moving a filter mask over the image and computing the sum of products at each location called as?
 a) Convolution
 b) Correlation
 c) Linear spatial filtering
 d) Non linear spatial filtering

Answer: b
Explanation: The process is called as Correlation.

74) The standard deviation controls "_____" of the bell (2-D Gaussian function of bell shape).
 a) Size
 b) Curve
 c) Tightness
 d) None of the Mentioned

Answer: c
Explanation: The standard deviation controls "tightness" of the bell.

75) What is required to generate an M X N linear spatial filter?
 a) MN mask coefficients
 b) M+N coordinates
 c) MN spatial coefficients
 d) None of the Mentioned

Answer: a
Explanation: To generate an M X N linear spatial filter MN mask coefficients must be specified.

76) What is the difference between Convolution and Correlation?
 a) Image is pre-rotated by 180 degree for Correlation
 b) Image is pre-rotated by 180 degree for Convolution
 c) Image is pre-rotated by 90 degree for Correlation
 d) Image is pre-rotated by 90 degree for Convolution

Answer: b
Explanation: Convolution is the same as Correlation except that the image must be rotated by 180 degrees initially.

77) Convolution and Correlation are functions of _____.
 a) Distance
 b) Time
 c) Intensity
 d) Displacement

Answer: d
Explanation: Convolution and Correlation are functions of displacement.

78) The function that contains a single 1 with the rest being 0s is called _____.
 a) Identity function
 b) Inverse function
 c) Discrete unit impulse
 d) None of the Mentioned

Answer: c
Explanation: It is called Discrete unit impulse.

79) Which of the following involves Correlation?
 a) Matching
 b) Key-points
 c) Blobs
 d) None of the Mentioned.

Answer: a
Explanation: Correlation is applied in finding matches.

80) An example of a continuous function of two variables is _____
 a) Identity function
 b) Intensity function
 c) Contrast stretching
 d) Gaussian function

Answer: d
Explanation: Gaussian function has two variables and is an exponential continuous function.

81) 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

Answer: c
Explanation: Smoothing is simply the average of the pixels contained in the neighbourhood.

82) Averaging filters is also known as _____ filter.
a) Low pass
b) High pass
c) Band pass
d) None of the Mentioned

Answer: a
Explanation: Averaging filters is also known as Low pass filters.

83) What is the undesirable side effects of Averaging filters?
a) No side effects
b) Blurred image
c) Blurred edges
d) Loss of sharp transitions

Answer: c
Explanation: Blue edges is the undesirable side effect of Averaging filters.

84) A spatial averaging filter in which all coefficients are equal is called _____.
a) Square filter
b) Neighbourhood
c) Box filter
d) Zero filter

Answer: c
Explanation: It is called a Box filter.

85) 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

Answer: a
Explanation: It is called weighted average since more importance(weight) is given to some pixels.

86) The non linear spacial filters whose response is based on ordering of the pixels contained is called _____.
a) Box filter
b) Square filter
c) Gaussian filter
d) Order-statistic filter

Answer: d
Explanation: It is called Order-statistic filter.

87) 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

Answer: c
 Explanation: It is called salt-and-pepper noise because of its appearance as white and black dots superimposed on an image.

88) Best example for a Order-statistic filter is _____.
 a) Impulse filter
 b) Averaging filter
 c) Median filter
 d) None of the Mentioned

Answer: c
 Explanation: Median filter is the best known Order-statistic filter.

89) What does "eliminated" refer to in median filter?
 a) Force to average intensity of neighbours
 b) Force to median intensity of neighbours
 c) Eliminate median value of pixels
 d) None of the Mentioned.

Answer: b
 Explanation: It refers to forcing to median intensity of neighbours.

90) 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

Answer: d
 Explanation: Median filter is better suited than average filter for salt-and-pepper noise elimination.

91) What is the set generated using infinite-value membership functions, called?
 a) Crisp set
 b) Boolean set
 c) Fuzzy set
 d) All of the mentioned

Answer: c
 Explanation: It is called fuzzy set.

92) Which is the set, whose membership only can be true or false, in bi-values Boolean logic?
 a) Boolean set
 b) Crisp set
 c) Null set
 d) None of the mentioned

Answer: b
 Explanation: The so called Crisp set is the one in which membership only can be true or false, in bi-values Boolean logic.

93) If Z is a set of elements with a generic element z, i.e. Z = {z}, then this set is called _____

a) Universe set
b) Universe of discourse
c) Derived set
d) None of the mentioned

Answer: b
Explanation: It is called the universe of discourse.

94) A fuzzy set 'A' in Z is characterized by a _____ _____ that associates with element of Z, a real number in the interval [0, 1].
a) Grade of membership
b) Generic element
c) Membership function
d) None of the mentioned

Answer: c
Explanation: A fuzzy set is characterized by a membership function.

95) A fuzzy set is _____ if and only if membership function is identically zero in Z.
a) Empty
b) Subset
c) Complement
d) None of the mentioned

Answer: a
Explanation: It is called an Empty set.

96) Which of the following is a type of Membership function?
a) Triangular
b) Trapezoidal
c) Sigma
d) All of the mentioned

Answer: d
Explanation: All of them are types of Membership functions.

97) Which of the following is not a type of Membership function?
a) S-shape
b) Bell shape
c) Truncated Gaussian
d) None of the mentioned

Answer: d
Explanation: All of the mentioned above are types of Membership functions.

98) Using IF-THEN rule to create the output of fuzzy system is called _____.
a) Inference
b) Implication
c) Both the mentioned
d) None of the mentioned

Answer: c
Explanation: It is called Inference or Implication.

99) What is the independent variable of fuzzy output?

a) Maturity
b) Membership
c) Generic Element
d) None of the mentioned

Answer: a
Explanation: Maturity is the independent variable of fuzzy output.

100) Which of the following is not a principle step in fuzzy technique?
a) Fuzzify input
b) Apply implication method
c) Defuzzify final output
d) None of the mentioned

Answer: d
Explanation: All of the mentioned above are key steps in fuzzy technique.

101) The principle objective of Sharpening, to highlight transitions is _____.
a) Pixel density
b) Composure
c) Intensity
d) Brightness

Answer: c
Explanation: The principle objective of Sharpening, to highlight transitions is Intensity.

102) How can Sharpening be achieved?
a) Pixel averaging
b) Slicing
c) Correlation
d) None of the mentioned

Answer: d
Explanation: Sharpening is achieved using Spatial Differentiation.

103) What does Image Differentiation enhance?
a) Edges
b) Pixel Density
c) Contours
d) None of the mentioned

Answer: a
Explanation: Image Differentiation enhances Edges and other discontinuities.

104. What does Image Differentiation de-emphasize?
a) Pixel Density
b) Contours
c) Areas with slowly varying intensities
d) None of the mentioned

Answer: c
Explanation: Image Differentiation de-emphasizes areas with slowly varying intensities.

105) The requirements of the First Derivative of a digital function:

a) Must be zero in areas of constant intensity
b) Must be non-zero at the onset of an intensity step
c) Must be non-zero along ramps
d) All of the Mentioned

Answer: d
Explanation: All the three conditions must be satisfied.

106) What is the Second Derivative of Image Sharpening called?
a) Gaussian
b) Laplacian
c) Canny
d) None of the mentioned

Answer: b
Explanation: It is also called Laplacian.

107. The ability that rotating the image and applying the filter gives the same result, as applying the filter to the image first, and then rotating it, is called _____.
a) Isotropic filtering
b) Laplacian
c) Rotation Invariant
d) None of the mentioned

Answer: c
Explanation: It is called Rotation Invariant, although the process used is Isotropic filtering.

108) For a function f(x,y), the gradient of 'f' at coordinates (x,y) is defined as a _____.

a) 3-D row vector
b) 3-D column vector
c) 2-D row vector
d) 2-D column vector

Answer: d
Explanation: The gradient is a 2-D column vector.

109) Where do you find frequent use of Gradient?
a) Industrial inspection
b) MRI Imaging
c) PET Scan
d) None of the mentioned

Answer: a
Explanation: Gradient is used in Industrial inspection, to aid humans, in detection of defects.

110) Which of the following occurs in Unsharp Masking?
a) Blurring original image
b) Adding a mask to original image
c) Subtracting blurred image from original
d) All of the mentioned

Answer: d

Explanation: In Unsharp Masking, all of the above occurs in the order: Blurring, Subtracting the blurred image and then Adding the mask.

111) Which of the following make an image difficult to enhance?
 a) Narrow range of intensity levels
 b) Dynamic range of intensity levels
 c) High noise
 d) All of the mentioned

Answer: d
 Explanation: All the mentioned options make it difficult to enhance an image.

112) Which of the following is a second-order derivative operator?
 a) Histogram
 b) Laplacian
 c) Gaussian
 d) None of the mentioned

Answer: b
 Explanation: Laplacian is a second-order derivative operator.

113) Response of the gradient to noise and fine detail is _____ the Laplacian's.
 a) equal to
 b) lower than
 c) greater than
 d) has no relation with

Answer: b
 Explanation: Response of the gradient to noise and fine detail is lower than the Laplacian's and can further be lowered by smoothing.

114) Dark characteristics in an image are better solved using _____.
 a) Laplacian Transform
 b) Gaussian Transform
 c) Histogram Specification
 d) Power-law Transformation

Answer: d
 Explanation: It can be solved by Histogram Specification but it is better handled by Power-law Transformation.

115) What is the smallest possible value of a gradient image?
 a) e
 b) 1
 c) 0
 d) -e

Answer: c
 Explanation: The smallest possible value of a gradient image is 0.

116) Which of the following fails to work on dark intensity distributions?
 a) Laplacian Transform
 b) Gaussian Transform
 c) Histogram Equalization
 d) Power-law Transformation

Answer: c
Explanation: Histogram Equalization fails to work on dark intensity distributions.

117_ is used to detect diseases such as bone infection and tumors.
a) MRI Scan
b) PET Scan
c) Nuclear Whole Body Scan
d) X-Ray

Answer: c
Explanation: Nuclear Whole Body Scan is used to detect diseases such as bone infection and tumors

118) How do you bring out more of the skeletal detail from a Nuclear Whole Body Bone Scan?
a) Sharpening
b) Enhancing
c) Transformation
d) None of the mentioned

Answer: a
Explanation: Sharpening is used to bring out more of the skeletal detail.

119) Final step of enhancement lies in _____ of the sharpened image.
a) Increase range of contrast
b) Increase range of brightness
c) Increase dynamic range
d) None of the mentioned

Answer: c
Explanation:Increasing the dynamic range of the sharpened image is the final step in enhancement.

120) An alternate approach to median filtering is _____
a) Use a mask
b) Gaussian filter
c) Sharpening
d) Laplacian filter

Answer:a
Explanation: Using a mask, formed from the smoothed version of the gradient image, can be used for median filtering.

# AKTU EXAM 19-20

Image Processing Solved MCQ

Answer Key

Question	Answer	Question	Answer	Question	Answer
1	B	26	B	51	A
2	C	27	B	52	D
3	A	28	C	53	D
4	A	29	D	54	A
5	B	30	B	55	A
6	B	31	B	56	A
7	C	32	A	57	B
8	C	33	D	58	D
9	D	34	A	59	B
10	A	35	C	60	A
11	D	36	C	61	C
12	A	37	D	62	A
13	B	38	D	63	A
14	B	39	B	64	C
15	C	40	C	65	D
16	B	41	D	66	A
17	A	42	A	67	C
18	B	43	D	68	A
19	C	44	B	69	D
20	B	45	C	70	B
21	D	46	C		
22	C	47	C		
23	B	48	A		
24	C	49	C		
25	C	50	B		

1. The spatial coordinates of a digital image (x,y) are proportional to:
   (A) Position
   (B) Brightness
   (C) Contrast
   (D) Noise

2. An image is considered to be a function of a(x,y), where a represents:
   (A) Height of image
   (B) Width of image
   (C) Amplitude of image
   (D) Resolution of image

3. What is pixel?
   (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

4. The range of values spanned by the gray scale is called:
   (A) Dynamic range
   (B) Band range
   (C) Peak range
   (D) Resolution range

5. Which is a colour attribute that describes a pure colour?

   (A) Saturation
   (B) Hue
   (C) Brightness
   (D) Intensity

6. 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

7. The number of grey values are integer powers of:
   (A) 4
   (B) 8
   (C) 2
   (D) 1

8. What is the first and foremost step in Image Processing?
   (A) Image restoration
   (B) Image enhancement
   (C) Image acquisition
   (D) Segmentation

9. What is the next step in image processing after compression?
   (A) Wavelets
   (B) Segmentation
   (C) Representation and description
   (D) Morphological processing

10. How many number of steps are involved in image processing?
   (A) 10
   (B) 9
   (C) 11
   (D) 12

11. A continuous image is digitized at _____ points.
   (A) Random
   (B) Vertex
   (C) Contour
   (D) Sampling

12. The transition between continuous values of the image function and its digital equivalent is called ___
   (A) Quantization
   (B) Sampling
   (C) Rasterization
   (D) None of the Mentioned

13. What is the equation used to obtain I (Intensity) component of each RGB pixel in RGB color format?
   (A) I=1/2(R+G+B)
   (B) I=1/3(R+G+B)
   (C) I=1/3(R-G-B)
   (D) I=1/3(R-G+B)

14. How many bit RGB color image is represented by full-color image?
   (A) 32-bit RGB color image
   (B) 24-bit RGB color image
   (C) 16-bit RGB color image
   (D) 8-bit RGB color image

15. The mask shown in the figure below belongs to which type of filter?
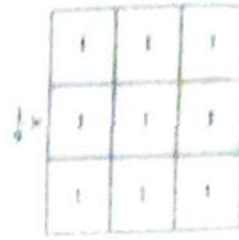
   (A) Sharpening spatial filter
   (B) Median filter
   (C) Smoothing spatial filter
   (D) Sharpening frequency filter

16. 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

17. If f(x,y) is an image function of two variables, then the first order derivative of a one dimensional function, f(x) is:
   (A) f(x+1)-f(x)
   (B) f(x)-f(x+1)
   (C) f(x-1)-f(x+1)
   (D) f(x)+f(x-1)

18. Which of the following is a second-order derivative operator?
   (A) Histogram
   (B) Laplacian
   (C) Gaussian
   (D) None of the mentioned

19. _____ is used to detect diseases such as bone infection and tumors.
    (A) MRI Scan
    (B) PET Scan
    (C) Nuclear Whole Body Scan
    (D) X-Ray

20. How is the expression represented for the normalized histogram?
    (A) $p(r_k)=n_k$
    (B) $p(r_k)=n_k/n$
    (C) $p(r_k)=nn_k$
    (D) $p(r_k)=n/n_k$

21. Which of the following conditions does the T(r) must satisfy?
    (A) T(r) is double-valued and monotonically decreasing in the interval $0 \leq r \leq 1$; and $0 \leq T(r) \leq 1$ for $0 \leq r \leq 1$
    (B) T(r) is double-valued and monotonically increasing in the interval $0 \leq r \leq 1$; and $0 \leq T(r) \leq 1$ for $0 \leq r \leq 1$
    (C) T(r) is single-valued and monotonically decreasing in the interval $0 \leq r \leq 1$; and $0 \leq T(r) \leq 1$ for $0 \leq r \leq 1$
    (D) T(r) is single-valued and monotonically increasing in the interval $0 \leq r \leq 1$; and $0 \leq T(r) \leq 1$ for $0 \leq r \leq 1$

22. What is the method that is used to generate a processed image that have a specified histogram?
    (A) Histogram linearization

    (B) Histogram equalization
    (C) Histogram matching
    (D) Histogram processing

23. In _____ image we notice that the components of histogram are concentrated on the low side on intensity scale
    (A) Bright
    (B) Dark
    (C) Colorful
    (D) All of the Mentioned

24. What is Histogram Equalization also called as?
    (A) Histogram Matching
    (B) Image Enhancement
    (C) Histogram linearization
    (D) None of the Mentioned

25. The output of a smoothing, linear spatial filtering is a _____ of the pixels contained in the neighborhood of the filter mask
    (A) Sum
    (B) Product
    (C) Average
    (D) Dot Product

26. What is/are the resultant image of a smoothing filter?
    (A) Image with high sharp transitions in gray levels
    (B) Image with reduced sharp transitions in gray levels
    (C) All of the mentioned
    (D) None of the mentioned

27. What is/are the resultant image of a smoothing filter?
    (A) Image with high sharp transitions in gray levels
    (B) Image with reduced sharp transitions in gray levels
    (C) All of the mentioned
    (D) None of the mentioned

28. Smoothing filter is used for which of the following work(s)?
    (A) Blurring
    (B) Noise reduction
    (C) All of the mentioned
    (D) None of the mentioned

29. Principle sources of noise arise during image
    (A) Destruction
    (B) Degradation
    (C) Restoration
    (D) Acquisition

30. Salt and pepper noise is also known as?
    (A) Rayleigh noise
    (B) Impulse noise
    (C) Black noise
    (D) Exponential noise

31. PDF in image processing is called
    (A) Probability Degradation Function
    (B) Probability Density Function
    (C) Probability Degraded Function
    (D) None of the above

32. Degraded image is produced using degradation process and
    (A) Additive noise
    (B) Destruction
    (C) Pixels
    (D) Coordinates

33. Gaussian noise is referred to as
    (A) Red Noise
    (B) Black Noise
    (C) White Noise
    (D) Normal Noise

34. If Degradation function is unity the equation for degradation function will be?
    (A) $g(x, y) = h(x, y) * f(x, y) + n(x, y)$
    (B) $g(x, y) = f(x, y) + n(x, y)$
    (C) $g(x, y) = n(x, y)$
    (D) $g(x, y) = f(x, y)$

35. Which filter is not known as Mean filter?
    (A) Arithmetic Mean Filter
    (B) Contra harmonic mean filter
    (C) Median Filter
    (D) Geometric Mean Filter

36. Which equation of noise model is correct?
    (A) $g(x, y) = h(x, y) * f(x, y) + n(x, y)$
    (B) $g(x, y) = f(x, y) + n(x, y)$
    (C) $g(x, y) = h(x, y) + n(x, y)$
    (D) $g(x, y) = f(x, y) + n(x, y)$

37. Minimum Mean Square Error Filtering is also known as?
   (A) Low pass filters
   (B) High pass filters
   (C) Wiener filtering
   (D) Mean filtering

38. In geometric mean filters when alpha is equal to 1 then it works as
   (A) Notch Filter
   (B) Bandpass Filter
   (C) Wiener filtering
   (D) Inverse filtering

39. Filter that performs opposite to band reject filter is called
   (A) Lowpass Filter
   (B) Bandpass Filter
   (C) Highpass Filter
   (D) Max Filter

40. Contraharmonic mean filter produces
   (A) Degraded Image
   (B) Original Image
   (C) Restored Image
   (D) Plan

41. One that is not the type of a mean filter
   (A) Arithmetic mean filter
   (B) Geometric mean filter
   (C) Harmonic mean filter
   (D) Sequence mean filter

42. Square of standard deviation is called
   (A) Variance
   (B) Noise
   (C) Restoration
   (D) Power

43. Two main operations of morphology are
   (A) Erosion
   (B) Dilation
   (C) Set theory
   (D) Both A & B

44. Dilation followed by erosion is called
   (A) Opening
   (B) Closing
   (C) Blurring
   (D) Translation

45. Opening smooths the image's
   (A) Pixels
   (B) Lines
   (C) Contour
   (D) Boundary

46. Structuring elements have origins at
   (A) Top left
   (B) Top right
   (C) Center
   (D) Bottom left

47. With dilation process images get
   (A) Thinner
   (B) Shrinked
   (C) Thickened
   (D) Sharpened

48. Fully containment of the Structuring Element in an image is required in
   (A) Erosion
   (B) Dilation
   (C) Opening
   (D) Closing

49. Example of Edge Detection Methods is
   (A) Neural Networks Segmentation
   (B) Graph Partitioning Methods
   (C) Watershed Transformation
   (D) Multi-scale Segmentation

50. What are the two approaches to segmentation?
   (A) Haar-like feature & 3-D rectangle approach
   (B) Region based segmentation & edge segmentation
   (C) Adaboost approach & edge segmentation
   (D) None of the above

51. Region growing is a ....image segmentation approach
   (A) Bottom-up
   (B) Top down
   (C) All of the above
   (D) None of the above

52. Example of Region Growing Methods is
   (A) Level Set Methods
   (B) Graph Partitioning Methods
   (C) Watershed Transformation
   (D) Neural Networks Segmentation

53. Edge based segmentation algorithm is using
   (A) Discontinuity and similarity
   (B) Threshold value
   (C) None of the above

   (D) Edge linking and boundary

54. Image segmentation is the process of
   (A) Partitioning a digital image into multiple segment
   (B) Classify the image into number of objects
   (C) None of the above
   (D) All of the above

55. Classical edge detectors uses
   (A) Prewitt operator
   (B) Robert operator
   (C) Threshold operator
   (D) Gaussian operator

56. Gray level image segmentation is generally based on two properties
   (A) Discontinuity and similarity
   (B) Continuity and similarity
   (C) Only similarity
   (D) None of the above

57. Compressed image can be recovered back by
   (A) Image enhancement
   (B) Image decompression
   (C) Image contrast
   (D) Image equalization

58. Image compression comprised of
   (A) Encoder
   (B) Decoder
   (C) Frames
   (D) Both A & B

59. In Huffman coding, data in a tree always occur?
   (A) Roots
   (B) Leaves

(C) Left sub trees

(D) Right sub trees

60. From the following given tree, what is the code word for the character 'a'?
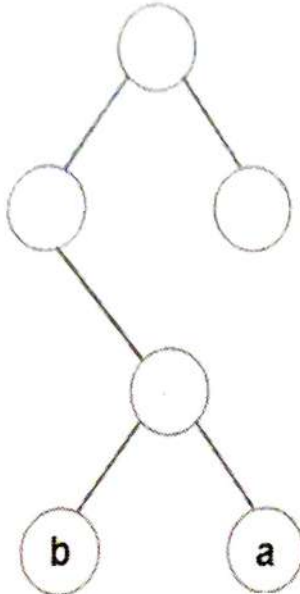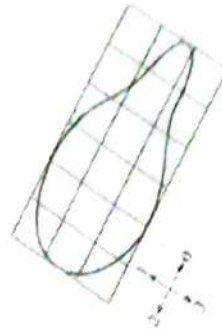

(A) 011

(B) 010

(C) 100

(D) 101

61. Joint Photographic Experts Group (JPEG) is used to compress

(A) Music

(B) Pictures

(C) Images

(D) Frames

62. Moving Picture Experts Group (MPEG-2), was designed for high-quality DVD with a data rate of

(A) 3 to 6 Mbps

(B) 4 to 6 Mbps

(C) 5 to 6 Mbps

(D) 6 to 6 Mbps

63. The chain code for the following shape is given as:

(A) 000030032232221211

(B) 003010203310321032

(C) 022332103210201330

(D) 012302301023100321

64. In Audio and Video Compression, each frame is divided into small grids, called picture elements or

(A) Frame

(B) Packets

(C) Pixels

(D) Mega Pixels

65. Which are recognized by vision?

(A) Objects

(B) Activities

(C) Motion

(D) Both Objects & Activities

66. Run Length Encoding of AAABBCDDDD is

(A) 3A2B1C4D

(B) 3A1B1C4D

(C) 2A2B1C4D

(D) 4D1C2B3A

67. Which of the following measures are not used to describe a region?

(A) Mean and median of grey values

(B) Minimum and maximum of grey values

(C) Number of pixels alone

(D) Number of pixels above and below mean

68. What is the study of properties of a figure that are unaffected by any deformation?

(A) Topology ·

(B) Geography

(C) Statistics

(D) Deformation

69. What is the Euler number of the image shown below?

(A) 0

(B) 1

(C) 2

(D) -1

70. What is the Euler number of the region shown in the figure below?

(A) 1

(B) -2

(C) -1

(D) 2

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