1. What is Digital Image Processing?  
a) It’s an application that alters digital videos  
b) It’s a software that allows altering digital pictures  
c) It’s a system that manipulates digital media  
d) It’s a machine that allows altering digital images

2. Which of the following process helps in Image enhancement?  
a) Digital Image Processing  
b) Analog Image Processing  
c) Both a and b  
d) None of the above

3. Among the following, functions that can be performed by digital image processing is?  
a) Fast image storage and retrieval  
b) Controlled viewing  
c) Image reformatting  
d) All of the above

4. Which of the following is an example of Digital Image Processing?  
a) Computer Graphics  
b) Pixels  
c) Camera Mechanism  
d) All of the mentioned

5. What are the categories of digital image processing?  
a) Image Enhancement  
b) Image Classification and Analysis  
c) Image Transformation  
d) All of the mentioned

6. How does picture formation in the eye vary from image formation in a camera?  
a) Fixed focal length  
b) Varying distance between lens and imaging plane  
c) No difference  
d) Variable focal

7. What are the names of the various colour image processing categories?  
a) Pseudo-color and Multi-color processing  
b) Half-color and pseudo-color processing  
c) Full-color and pseudo-color processing  
d) Half-color and full-color processing

8. Which characteristics are taken together in chromaticity?  
a) Hue and Saturation  
b) Hue and Brightness  
c) Saturation, Hue, and Brightness  
d) Saturation and Brightness

9. Which of the following statement describe the term pixel depth?  
a) It is the number of units used to represent each pixel in RGB space  
b) It is the number of mm used to represent each pixel in RGB space  
c) It is the number of bytes used to represent each pixel in RGB space  
d) It is the number of bits used to represent each pixel in RGB space

10. The aliasing effect on an image can be reduced using which of the following methods?  
a) By reducing the high-frequency components of image by clarifying the image  
b) By increasing the high-frequency components of image by clarifying the image  
c) By increasing the high-frequency components of image by blurring the image  
d) By reducing the high-frequency components of image by blurring the image

11. Which of the following is the first and foremost step in Image Processing?  
a) Image acquisition  
b) Segmentation  
c) Image enhancement  
d) Image restoration

12. Which of the following image processing approaches is the fastest, most accurate, and flexible?  
a) Photographic  
b) Electronic  
c) Digital  
d) Optical

13. Which of the following is the next step in image processing after compression?  
a) Representation and description  
b) Morphological processing  
c) Segmentation  
d) Wavelets

14. \_\_\_\_\_\_\_\_\_\_\_ determines the quality of a digital image.  
a) The discrete gray levels  
b) The number of samples  
c) discrete gray levels & number of samples  
d) None of the mentioned

15. Image processing involves how many steps?  
a) 7  
b) 8  
c) 13  
d) 10

17. Which of the following is the role played by segmentation in image processing?  
a) Deals with property in which images are subdivided successively into smaller regions  
b) Deals with partitioning an image into its constituent parts or objects  
c) Deals with extracting attributes that result in some quantitative information of interest  
d) Deals with techniques for reducing the storage required saving an image, or the bandwidth required to transmit it

18. The digitization process, in which the digital image comprises M rows and N columns, necessitates choices for M, N, and the number of grey levels per pixel, L. M and N must have which of the following values?  
a) M have to be positive and N have to be negative integer  
b) M have to be negative and N have to be positive integer  
c) M and N have to be negative integer  
d) M and N have to be positive integer

19. Which of the following tool is used in tasks such as zooming, shrinking, rotating, etc.?  
a) Filters  
b) Sampling  
c) Interpolation  
d) None of the Mentioned

20. The effect caused by the use of an insufficient number of intensity levels in smooth areas of a digital image \_\_\_\_\_\_\_\_\_\_\_\_\_  
a) False Contouring  
b) Interpolation  
c) Gaussian smooth  
d) Contouring

21. What is the procedure done on a digital image to alter the values of its individual pixels known as?  
a) Geometric Spacial Transformation  
b) Single Pixel Operation  
c) Image Registration  
d) Neighbourhood Operations

22. Points whose locations are known exactly in the input and reference images are used in Geometric Spacial Transformation.  
a) Known points  
b) Key-points  
c) Réseau points  
d) Tie points

23. \_\_\_\_\_\_\_\_\_\_\_ is a commercial use of Image Subtraction.  
a) MRI scan  
b) CT scan  
c) Mask mode radiography  
d) None of the Mentioned

24. Approaches to image processing that work directly on the pixels of incoming image work in \_\_\_\_\_\_\_\_\_\_\_\_  
a) Spatial domain  
b) Inverse transformation  
c) Transform domain  
d) None of the Mentioned

25. Which of the following in an image can be removed by using a smoothing filter?  
a) Sharp transitions of brightness levels  
b) Sharp transitions of gray levels  
c) Smooth transitions of gray levels  
d) Smooth transitions of brightness levels

26. Region of Interest (ROI) operations is generally known as \_\_\_\_\_\_\_  
a) Masking  
b) Dilation  
c) Shading correction  
d) None of the Mentioned

27. Which of the following comes under the application of image blurring?  
a) Image segmentation  
b) Object motion  
c) Object detection  
d) Gross representation

28. Which of the following filter’s responses is based on the pixels ranking?  
a) Sharpening filters  
b) Nonlinear smoothing filters  
c) Geometric mean filter  
d) Linear smoothing filters

29. Which of the following illustrates three main types of image enhancing functions?  
a) Linear, logarithmic and power law  
b) Linear, logarithmic and inverse law  
c) Linear, exponential and inverse law  
d) Power law, logarithmic and inverse law

30. Which of the following is the primary objective of sharpening of an image?  
a) Decrease the brightness of the image  
b) Increase the brightness of the image  
c) Highlight fine details in the image  
d) Blurring the image

31. Which of the following operation is done on the pixels in sharpening the image, in the spatial domain?  
a) Differentiation  
b) Median  
c) Integration  
d) Average

32. \_\_\_\_\_\_\_\_ is the principle objective of Sharpening, to highlight transitions.  
a) Brightness  
b) Pixel density  
c) Composure  
d) Intensity

33. \_\_\_\_\_\_\_\_\_ enhance Image Differentiation?  
a) Pixel Density  
b) Contours  
c) Edges  
d) None of the mentioned

34. Which of the following fact is correct for an image?  
a) An image is the multiplication of illumination and reflectance component  
b) An image is the subtraction of reflectance component from illumination component  
c) An image is the subtraction of illumination component from reflectance component  
d) An image is the addition of illumination and reflectance component

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

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

37. \_\_\_\_\_\_\_\_\_ is the process of moving a filter mask over the image and computing the sum of products at each location.  
a) Nonlinear spatial filtering  
b) Convolution  
c) Correlation  
d) Linear spatial filtering

38. Which side of the greyscale is the components of the histogram concentrated in a dark image?  
a) Medium  
b) Low  
c) Evenly distributed  
d) High

39. Which of the following is the application of Histogram Equalisation?  
a) Blurring  
b) Contrast adjustment  
c) Image enhancement  
d) None of the Mentioned

40. Which of the following is the expansion of PDF, in uniform PDF?  
a) Probability Density Function  
b) Previously Derived Function  
c) Post Derivation Function  
d) Portable Document Format

41. \_\_\_\_\_\_\_\_\_\_\_\_ filter is known as averaging filters.  
a) Bandpass  
b) Low pass  
c) High pass  
d) None of the Mentioned

42. What is/are the resultant image of a smoothing filter?  
a) Image with reduced sharp transitions in gray levels  
b) Image with high sharp transitions in gray levels  
c) None of the mentioned  
d) All of the mentioned

43. The response for linear spatial filtering is given by the relationship \_\_\_\_\_\_\_\_\_\_  
a) Difference of filter coefficient’s product and corresponding image pixel under filter mask  
b) Product of filter coefficient’s product and corresponding image pixel under filter mask  
c) Sum of filter coefficient’s product and corresponding image pixel under filter mask  
d) None of the mentioned

44. \_\_\_\_\_\_\_\_\_\_\_ is/are the feature(s) of a highpass filtered image.  
a) An overall sharper image  
b) Have less gray-level variation in smooth areas  
c) Emphasized transitional gray-level details  
d) All of the mentioned

45. The filter order of a Butterworth lowpass filter determines whether it is a very sharp or extremely smooth filter function, or an intermediate filter function. Which of the following filters does the filter approach if the parameter value is very high?  
a) Gaussian lowpass filter  
b) Ideal lowpass filter  
c) Gaussian & Ideal lowpass filters  
d) None of the mentioned

46. Which of the following image component is characterized by a slow spatial variation?  
a) Reflectance and Illumination components  
b) Reflectance component  
c) Illumination component  
d) None of the mentioned

Class Test II

3CS1313-DIPA

1. If image is rotated for an angle φ the shifted spectrum also shifts with the same angle .(True/False)
2. When the Fourier spectrum noise is constant the noise usually is called

(a)Rayleigh Noise (b) Salt and pepper noise (c) White Noise

1. The nature of the noise can be best identified by

(a) Image itself (b) Spectrum of the image (c) Histogram of the image.

1. Variable length coding can be used to compress a histogram equalized image with 2n gray levels(True/False)
2. Again applying histogram equalization in the image will further bring the CDF closer to the ideal CDF(True/False)
3. Higher order butter worth filters addresses the ringing effect of the ideal low pass filter well.(true/false)
4. Multiplying image by (-1)(x+y) is because ------------------------ property of fourier transform
5. Shifting property (b) Symmetric (c) derivative property (d) periodic
6. Adaptive median filter checks for two things to ensure 1.no pixel which is not a noise is not replaced, 2. if the filter blurring the image, 3. if the pixel it is trying to replace is dark or bright 4. is the filter size appropriate to remove the noise
7. 1&2 (b) 1&3 (c)2&3 (d) 1&4
8. The f(0,0) componenet of the image for the image [1,1,1;1,4,5;1,1,1] is
9. 5 (b) 1 (c) 4 (d) 2 d
10. The difference between Image restoration(IR) and image enhancement(IE) is that
11. IR improves the image quality but IE degrades the quality
12. IR is objective processing and IE is subjective
13. IR blurs the image IE do not blur the image

|  |
| --- |
| **1**. Plot the signatures of the following boundaries   * an equilateral triangle * A rectangle |
|  |
| **2.** Obtain the co-occurrence matrix of size 3X3 for the sub image shown in figure below using the position operator P as ‘one pixel to the right and one below’.  1 2 2 1 3  1 2 2 2 2  2 3 3 1 1  1 2 1 3 1 |