Quiz with 4 groups on Unit 1 and Unit 2

Subject – Digital Image Processing

BE- E & TC

Unit 1

Q1) Image Sensing and Acquisition

Q2) various steps in image processing.

Q3) MTF, OTF for human vision.

Q4) Rods and cones in eye.

Q5) When we enter in cinema hall, for short period we are not able to see anything, but with some time we can see the things inside. Explain the reason.

Q6) Explain briefly:

Mach band effect

Spatial Resolution

Gray Level resolution

Q7) sampling and quantization is used in an image. Which is more important.

Q8) Explain 4 connectivity

8 connectivity

m connectivity with reference to relation between pixels?

Q9) statistical properties of an image? Explain briefly.

Q10) explain different mathematical operations used in image processing.

Q 11) Scotopic vision - Night vision and photopic vision

Unit 2

Q1. Distinguish between mask processing and point processing.

Q2. Explain histogram equalization. Why it is required?

Q3. Explain following methods of Image Enhancement in spatial domain.

i) Contrast stretching.

ii) Power law transformation. What is the effect of this transformation on contrast of the image.

Q4. Explain how arithmetic and logic operations can be used for image

Enhancement.

Q5. What is image smoothening? What are the properties of Gaussian filter

that makes it useful for image smoothening.

Q6) Explain median filtering? Give its applications. Compare median filter with averaging filter. What is the diference between nonlinear and linear filter.

Q7. Explain how Laplacian can be used for image enhancement.

Q8. Write short notes on :

a) Unsharp masking. State its application

b) High boost filter.

Q9. Explain Homomorphic filter. State its applications.

Q10. Discuss image enhancement in frequency domain.

Q11. Explain edge detection procedure using Sobel and Roberts mask. Discuss the problems of edge detection in noisy image.

Q12. What is Pseudo coloring? Discuss various Pseudo coloring techniques used for Image Enhancement? Give its applications.

Q13. Discuss RGB, CMYK, YIQ and HSI color models. What is the need to study color models in image processing? Give its advantages and applications

Q14. Explain RGB to HSI conversion. What is its need?

Q15 i) A gray level transform is given by T (f) = af + b where f is the

original gray level. What are the transform coefficients (a & b) if

we are inverting image.

ii) An 8 bit image has mean value of 100 and standard deviation of

10. What can you say about quality of the contrast in image. If the

image is passed through gray level transform

$g(x, y) = 2f(x, y) + 10.$

What is the mean value and standard deviation of the transformed image.

15 b) image range is from 90 to 110. Hence low contrast image.

After transformation new image will have mean = 2*100 + 10 = 210 and std deviation will incresase to 2*10 = 20 and the range will vary from 190 to 230.

Hence Contrast will increasers (As SD has increased and brightness of the image increases.(as mean has increased

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Group 1(Marks)
Group 2
Group 3
Group 4