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**Question Paper Code: 52338**

M.E. DEGREE EXAMINATION, NOV 2016

Elective

Computer Science and Engineering

15PCS513 - IMAGE PROCESSING AND ANALYSIS

(Regulation 2015)

Duration: Three hours

Maximum: 100 Marks

Answer ALL Questions

PART A - (5 x 1 = 5 Marks)

- Image derivatives are defined as
  - sum
  - differences
  - multiplication
  - division
- Sampled frequency less than Nyquist rate is called
  - under sampling
  - over sampling
  - critical sampling
  - Nquist sampling
- Second derivatives in image segmentation produce
  - thick edges
  - thin edges
  - fine edges
  - rough edges
- Point detection is done using filter that is
  - Gaussian
  - laplacian
  - ideal
  - butterworth
- RGB colors on internet applications are called
  - safe colors
  - colors space
  - web colors
  - safe web colors

PART - B (5 x 3 = 15 Marks)

6. What is a fuzzy filter?
7. Wavelet transform is superior to Fourier transform. Justify.
8. When does a global valley appear in a histogram?
9. When do corners appear in an image? How are they detected directly.
10. List the different types of color models.

PART - C (5 x 16 = 80 Marks)

11. (a) Assume that you are employed in a medical imaging centre. Discuss the modalities of images to be captured relevant to different organs and internal functions. (16)

Or

- (b) Explain image sampling and quantization with neat diagrams. (16)

12. (a) Discuss discrete Fourier transform in detail. (16)

Or

- (b) Explain frequency domain filtering techniques in detail. (16)

13. (a) Explain different thresholding methods in detail. (16)

Or

- (b) Explain the steps involved in canny edge detection with neat diagrams. (16)

14. (a) Assume that a sharpened pencil is lying on a table. Explain how you will apply Harris interest point operator to detect the top of the pencil. (16)

Or

- (b) Discuss the role of gray scale co-occurrence matrices in texture analysis. (16)

15. (a) Assume that you have a huge volume of binary data and the memory space is constrained. Explain the techniques you will employ to store the data. (16)

Or

- (b) Discuss color transformation techniques in detail. (16)