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Paper Id: 121803

Sub Code: NEN 043

Roll No: XXXXXXXXXX

B TECH

**(SEM-VIII) THEORY EXAMINATION 2017-18
IMAGE PROCESSING**

Time : 3 Hours

Max. Marks: 100

Note: Be precise in your answer. In case of numerical problem assume data wherever not provided.

SECTION - A

1. Attempt all of the following questions:**10 x 2 = 20**

- (a) Define pixel or picture element.
- (b) Which are the components involved in image processing?
- (c) What do you mean by pseudo color image?
- (d) What do you mean by image enhancement?
- (e) Write a situation where PNG file format is more preferable than JPEG.
- (f) What do you mean by Gray level?
- (g) What do you mean by 8-neighbors of pixel? How it can be represented?
- (h) What is Dpi? What is the effect on image quality if dpi is increase or decrease?
- (i) How much memory required for storing 500x500 binary images?
- (j) What is spatial resolution?

SECTION - B

2. Attempt any five of the following questions:**5 x 10 = 50**

- (a) Compare Fourier and Wavelet transform. Mention applications of wavelet.
Explain image pyramid in detail.
- (b) What are the fidelity criteria to assess the loss during the image compression?
- (c) Explain DCT and DST transform applications in Digital image processing.
- (d) Explain Periodic Noise Reduction by Frequency Domain Filtering.
- (e) Compare effects of Min-Max filter and Adaptive filter on image restoration.
- (f) Why Laplacian mask coefficient sum is zero? Discuss the effects on resultant image by applying the Laplacian filter in frequency domain.
- (g) Draw the block diagram of signature verification and explain its working.
- (h) **Write short note on:**
 - (a) Map understanding.
 - (b) Bio-logical cell classification.

SECTION - C

Attempt any two of the following questions:**2 x 15 = 30**

- 3. What do you mean by various Arithmetic and Logical operations on image?
- 4. Explain relationship between image size, intensity resolution and image quality with example.
- 5. Explain Hough transform, topological and texture analysis.