

SUBJECT: DIGITAL IMAGE AND VIDEO PROCESSING

Day: - Thursday  
Date: 22/11/2018

Time: 11.00 AM TO 02.00 PM  
Max. Marks: 60

W-2018-3142

**N.B:**

- 1) All questions are **COMPULSORY**.
- 2) Figures to the right indicate **FULL** marks.
- 3) Answer to both the sections should be written in the **SEPARATE** answer books.
- 4) Use of non-programmable **CALCULATOR** is allowed.

**SECTION-I**

- Q.1** a) Draw and explain components of an image processing system. (05)  
b) How image is formed in the eye, explain with diagram. (05)

**OR**

Explain following concepts with example. (10)  
i) Neighbors of a pixel      iii) Adjacency  
ii) Connectivity

- Q.2** Explain spatial correlation and convolution. (10)

**OR**

Explain smoothing linear filter. (10)

- Q.3** Explain Hadamard transform for image compression in detail with example. (10)

**OR**

Explain 2-D DCT coding for image compression. (10)

**SECTION-II**

- Q.4** What is thresholding? Explain iteration algorithm for thresholding. (10)

**OR**

Explain Ostu's method for thresholding. (10)

- Q.5** Explain how we can restore image in the presence of noise using spatial filtering. (10)

**OR**

Explain max, min and median filter with example. (10)

- Q.6** Discuss the concept of optical flow for motion estimation. (10)

**OR**

What are the different motion estimation criteria for video signal? Explain phase correlation method for motion estimation. (10)