

Total No. of Questions : 4]

SEAT No. :

P-5286

[Total No. of Pages : 2

[6188]-247

B.E. (Robotics And Automation) (In Sem.)

MACHINE VISION SYSTEM

(2019 Pattern) (Semester - VII) (411501)

Time : 1 Hour]

[Max. Marks : 30

Instructions to the candidates :

- 1) *Neat diagrams must be drawn wherever necessary.*
- 2) *Figures to the right side indicate full marks.*
- 3) *Use of Calculator is allowed.*
- 4) *Assume Suitable data if necessary.*

- Q1)** a) What is the significance of lightning system and sensors in machine vision components? [5]
- b) State applications of machine vision in automotive industry and manufacturing industry. [5]
- c) Define following : i) Digital image ii) Pixel iii) Saturation iv) Hue v) Contrast [5]

OR

- Q2)** a) Describe the steps of machine vision processing with the neat and labeled block diagram. [8]
- b) What is sampling and quantizing? (Explain with example). [7]
- Q3)** a) Explain how Fourier transforms are useful in digital image processing and explain the properties of Fourier transform. [7]
- b) For the following image: [8]
- i) Compute the histogram and the pdf of given 3-bit image
 - ii) Generate equalized image by using global histogram equalization processing.

P.T.O.

- iii) Draw the histogram of original image and processed image.
- iv) What will be the probability of intensity value 3 in the processed image?

1 2 1 1 5

7 5 4 3 1

2 1 5 2 1

7 2 3 6 4

1 6 1 3 2

OR

- Q4)** a) Write detail note on: i) Spatial domain enhancement ii) Frequency domain enhancement. [8]
- b) What is function of low pass filters in machine vision system? Write a short note on Gaussian low pass filter. [7]

