Total No. of Questions : 4]

SEAT No. :

PE-283

[Total No. of Pages : 2

[6580]-651

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 jf necessary***

Q1) a) Describe the steps of machine vision processing functions with the neat and labelled block diagram. **[7]**

b) Define digital image processing and provide examples of its applications in different fields such as medicine, security and robotic industry. **[8]**

OR

Q2) a) Explain the concept of digital image presentation. How does digital image presentation differ from traditional image display methods? **[8]**

b) Compare and contrast the human visual system with a digital image processing system. How do the differences affect their applications in technology? **[7]**

P.T.O.

Q3) a) Define sampling and quantization in digital image processing. How do these processes affect image resolution and quality? **[8]**

b) Write a short note on histogram equalization. **[7]**

OR

Q4) a) Discuss different types of image sensors, such as CCD and CMOS. Compare their advantages and limitations in digital image acquisition. **[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.

iii) Draw the histogram of original image and processed image.

iv) What will be the probability of intensity value 5 in the processed image?

1 2 3 3 5

4 5 4 3 1

4 1 5 2 4

6 2 3 6 4