Q. Code: 663122

Reg. No. | | | | | | | | | |

M.E. / M.TECH. DEGREE EXAMINATIONS, MAY 2019

Second Semester

MS18203-MACHINE VISION

(*Mechatronics*)

(Regulation 2018)

Time: Three Hours **Maximum : 100 Marks**

Answer **ALL** questions

PART A - (10 X 2 = 20 Marks)

1. Differentiate between machine vision and computer vision
2. Describe the polarization of light
3. Describe a CCD image sensor
4. Describe briefly about structured lighting.
5. Define a pixel
6. Write the importance of image smoothing
7. List few machine vision softwares.
8. Name any three image features in image analysis
9. Mention any two metrology and gauging application of machine vision
10. State about augmented reality

PART B - (5 X16 = 80 Marks)

11. (a) (i) Draw the structure of machine vision system and explain the basic components of machine vision system. **(8)**

(ii) Discuss the importance of cones and rods in visual system. **(8)**

(OR)

(b) (i) Derive thin lens equation **(8)**

(ii) Explain the factors to be considered in implementing industrial machine vision system. **(8)**

12. (a) State the importance of camera calibration and explain different methods in detail. **(16)**

(OR)

(b) Discuss about machine vision lenses and optical filters in detail. **(16)**

13. (a) (i) Discuss the image acquisition modes in digital imaging. **(8)**

(ii) Explain binary morphology in detail. **(8)**

(OR)

(b) Explain the following: i) Point Operation, ii) Thresholding, iii) Grayscale Stretching. **(16)**

14. (a) Explain feature extraction and texture analysis in detail. **(16)**

(OR)

(b) Explain Image processing in spatial and frequency Domain. **(16)**

15. (a) (i) Write short notes on applications of MV in vision guided robotics. **(8)**

(ii) Explain the machine vision applications in manufacturing industry. **(8)**

(OR)

(b) (i) Explain the machine vision applications in OCR and OCV. **(8)**

(ii) Write short notes on machine vision applications in Agriculture. **(8)**