Total No. of Questions : 8] SEAT No. :

P4137 [Total No. of Pages : 2

[4860]-343
M.E. (Computer Engg.)
PATTERN RECOGNITION AND MACHINE VISION
(2008 Pattern) (Semester - II) (Elective - III(b))

Time : 3 Hours] *[Max. Marks : 100*

Instructions to the candidates:

1) *Answer any THREE questions from each section.*
2) *Answers to the two sections should be written in separate books.*
3) *Neat diagrams must be drawn wherever necessary.*
4) *Figures to the right indicate full marks.*
5) *Use of logarithmic tables slide rule, Mollier charts, electronic pocket calculator and steam tables is allowed.*
6) *Assume suitable data, if necessary.*

SECTION - I

Q1) a) State and Explain the basic stages involved in the design of a classification system. **[8]**

b) Explain classification and regression. Explain different cross validation techniques in brief. **[8]**

Q2) a) Explain Baye's minimum error rate classification in brief. **[8]**

b) Explain the Nearest neighbour approach for multi-category classification. Give suitable example. **[8]**

Q3) a) What is Active Shape Model. Explain the role of Active Shape Model in Pattern classification. **[8]**

b) What is the role of Dimension reduction in pattern recognition. State and explain different methods in brief. **[8]**

Q4) a) Explain in brief Estimation Theory. **[8]**

P.T.O.

b) Write a short notes on any two **[10]**

i) Principal Component Analysis

ii) Discriminant Function

iii) Levenberg-Marquardt algorithm

SECTION - II

Q5) a) What is tracking? What are its applications? State & discuss linear 1-D Kalman filter for motion estimation. **[10]**

b) Discuss the Optical flow estimation using suitable algorithm. **[8]**

Q6) a) Define & discuss the use of fundamental (F) matrix for locating & motion estimation. **[8]**

b) Explain the Projective transformation for Image formation. **[8]**

Q7) a) What is Stereopsis? Discuss correlation method used for stereo matching. **[8]**

b) Explain Object recognition using geometrics hashing. **[8]**

Q8) a) State applications of object recognition in different field. **[4]**

b) Write a note on any two **[12]**

i) Interpretation tree

ii) Motion based Segmentation

iii) Surface Triangulation