2007E579   Candidate's Seat No : _____

M.C.A. Sem.-3 (A.T.K.T.) Examination

Computer Vision

Time : 3-00 Hours]   July-2024   **[Max. Marks : 50**

SECTION I

Q1.   Define the following (ANY SIX):   [09]

      i.   Image

      ii.   Quantisation

      iii.   Spatial resolution

      iv.   Segmentation

      v.   Local features

      vi.   Histogram

      vii.   Edge

      viii.   Gradient

Q2.   Give mathematical representation of image. How it is represented in spatial domain?   [08]

      Explain various point processing operations on image with their application areas

OR

Q2.   Explain in detail with example   [08]

      i.   Contrast streching

      ii.   Bit plane slicing

      iii.   Gray level slicing

Q3.   Explain effects of histogram equalisation. Explain the mathematics behind it   [08]

OR

Q3.   Explain the representation of image in frequency domain. What is Fourier transform?   [08]

      What is advantage of its representation? Explain steps of image enhancement in

      frequency domain

SECTION II

Q4.   What is convolution? Explain image smoothening through convolution. What are the   [09]

      applications? Write filters/kernel for:

      i.   Mean filter

      ii.   Median filter

      iii.   Min and Max filter

Q5.   What are different type of edges? Give difference between Laplacian and Gradient   [08]

      operators. Write filters for Sobel and Laplacian filters

(P, T, O)

E579-2

OR

Q5.   Give difference between global and local features. Explain algorithm for extraction of   [08]
       local features through HOG

Q6.   Why corners are considered to be appropriate features ? Explain Harris corner detector   [08]
       algorithm

                                              OR

Q6.   What are applications of segmentation? Explain region based, edge based and clustering   [08]
       based approaches in detail.