Total No. of Questions : 8] *[Total No. of Printed Pages : 2*

Roll No .....

MCA-505(B)

M.C.A. V Semester

Examination, June 2020

Computer Vision and Digital Image Processing

(Elective-III)

Time : Three Hours

Maximum Marks : 70

Note : i) Attempt any five questions out of eight questions.

ii) All questions carry equal marks.

iii) Assume suitable data, if required.

1. a) Write the different elements of Visual Perception. Draw and explain the structure of Human Eye.

   b) Write a table of Electromagnetic Spectrum with their ranges. Try to explain the visible spectrum of electromagnetic spectrum.

2. a) What are the basics of Intensity Transformation functions? Explain image negatives log transformations and power law transformations intensity functions.

   b) What do you understand by Histogram Processing? Derive histogram Equalization with suitable example.

3. a) Discuss about the Edge detection and Gradient operators with example.

   b) Discuss about the Edge linking and Boundary Detection.

4. a) Derive an expression which represents a model of simple image. Also write down the different applications of Image Processing.

   b) Explain the concept of Image sampling and quantization. Explain it with the help of suitable example.

5. a) Explain the principle of image understanding. What do you mean by Motion Tracking?

   b) Discuss about the Hough Transform with the help of suitable derivations.

6. a) Discuss the operations which can be performed by the use of Histogram techniques with suitable examples.

   b) Explain the low pass filtering and averaging of multiple images.

7. a) Discuss the principles of Low Pass and High Pass filtering techniques.

   b) Write down the practical examples of image subtraction and image averaging.

8. Write short notes (any four):

   a) Chain Codes

   b) Role of Computer Vision

   c) Pixel

   d) Segmentation

   e) Regional Descriptors

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