

Reg No.: \_\_\_\_\_

Name: \_\_\_\_\_

**APJ ABDUL KALAM TECHNOLOGICAL UNIVERSITY****SIXTH SEMESTER B.TECH DEGREE EXAMINATION(R&S), MAY, 2019****Course Code: MR 304****Course Name: DIGITAL IMAGE PROCESSING AND MACHINE VISION**

Max. Marks: 100

Duration: 3 Hours

**PART A***Answer all questions, each carries 5 marks.*

- |   |   |   |
|---|---|---|
| 1 | List out any two properties of 2D Fourier transform   | 5 |
| 2 | Draw the transformation function of contrast stretching and summarize.                      | 5 |
| 3 | Elaborate in detail about the concept of pseudo inverse filtering.                          | 5 |
| 4 | Evaluate the following terms  | 5 |
|   | (a) Data redundancy   |   |
|   | (b) Relative data redundancy  |   |
| 5 | Give a brief description about image segmentation and applications of image segmentation.   | 5 |
| 6 | Define thresholding? Differentiate between single thresholding and multilevel thresholding. | 5 |
| 7 | Write a short note on illumination  | 5 |
| 8 | Summarize on the classification of machine vision   | 5 |

**PART B***Answer any three questions, each carries 10 marks.*

- |    |  |    |
|----|--|----|
| 9  | a) Recognize the elements of visual perception   | 5  |
|    | b) Interpret the basic geometric transformations   | 5  |
| 10 | Elucidate about the principle of image enhancement using   |    |
|    | a) Histogram equalisation  | 5  |
|    | b) Image subtraction   | 5  |
| 11 | Estimate wiener filtering approach for image restoration   | 10 |
| 12 | State the coding procedure used in Huffman coding with suitable example  | 10 |
| 13 | Appraise the three methods for the estimation of unknown degradation function using blind image restoration method | 10 |

**PART C**

*Answer any two questions, each carries 15 marks.*

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|----|---|----|
| 14 | Evaluate about chain codes approach of boundary representation  | 15 |
| 15 | a) Write a detail description about boundary segments.  | 7  |
|    | b) Clarify the following  | 8  |
|    | a) Edge detection   |    |
|    | b) Thresholding   |    |
| 16 | a) Narrate in detail about image acquisition and digitization   | 6  |
|    | b) With neat sketch explain CCD camera and its purpose.   | 9  |
| 17 | a) Define machine vision and also write a detailed description about low level and high level vision. | 9  |
|    | b) List out the various steps in feature extraction and summarize.                                    | 6  |