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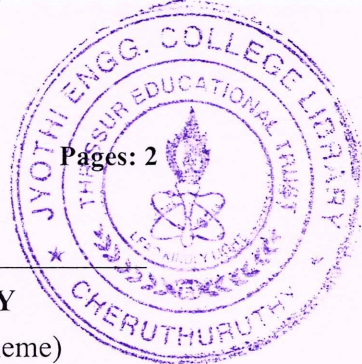
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Reg No.: \_\_\_\_\_

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

**APJ ABDUL KALAM TECHNOLOGICAL UNIVERSITY**

B.Tech Degree S6 (S,FE) Examination December 2025 (2019 Scheme)



**Course Code: MRT304**

**Course Name: DIGITAL IMAGE PROCESSING & MACHINE VISION**

**Max. Marks: 100**

**Duration: 3 Hours**

**PART A**

*Answer all questions, each carries 3 marks.*

Marks

- |    |   |     |
|----|---|-----|
| 1  | Define neighbours of a pixel.                                   | (3) |
| 2  | Write about any two geometric transformations                   | (3) |
| 3  | Compare smoothing and sharpening in image enhancement           | (3) |
| 4  | Describe basic frequency domain enhancement with block diagram  | (3) |
| 5  | Explain redundancies in image compression                       | (3) |
| 6  | Differentiate between lossy and lossless compression            | (3) |
| 7  | What is edge detection? List two types of edge detection models | (3) |
| 8  | Give a brief description about image segmentation               | (3) |
| 9  | Define 1D and 3D Vision.  | (3) |
| 10 | List any six applications of machine vision                     | (3) |

**PART B**

*Answer any one full question from each module, each carries 14 marks.*

**Module I**

- 11 a) Explain in detail about fundamental steps in image processing with block diagram (14)

**OR**

- 12 a) Construct Walsh basic for N=8 (14)

**Module II**

- 13 a) What is homomorphic filter and explain its procedure with neat block diagram (14)

**OR**

- 14 a) With necessary equations and graph explain the noise models (14)

**Module III**

- 15 a) Illustrate wavelet coding image with neat sketches. (14)

**OR**

- 16 a) Explain Huffman coding procedure with suitable example (14)

**Module IV**

- 17 a) Discuss in detail about thresholding (14)

OR

- 18 a) Explain in detail any two boundary representation schemes and illustrate with examples. (14)

**Module V**

- 19 a) Define machine vision and also compare low level and high level machine vision (14)

OR

- 20 a) Explain in detail about components of machine vision system with neat block diagram (14)

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