

BACHELOR OF TECHNOLOGY (CBCS) (2021-COURSE)
B. Tech. Sem - VIII Computer Science & Business Systems : WINTER: 2025
SUBJECT: ELECTIVE-VI:IMAGE PROCESSING & PATTERN RECOGNITION

Day : Wednesday

Date : 03/12/2025

W-24217-2025

Time : 02:30 PM-05:30 PM

Max. Marks : 60

N.B.

- 1) All questions are **COMPULSORY**.
- 2) Figures to the **RIGHT** indicate **FULL** marks.
- 3) Assume suitable data **WHEREVER** necessary.
- 4) Draw neat diagrams **WHEREVER** necessary.

- Q.1** What is digital sampling and quantization? Explain in detail (10)
OR
- Q.1** Elaborate the importance of image enhancement in image processing? Explain in brief any two-point processing techniques implemented in image processing. (10)
- Q.2** Analyze the effectiveness of predictive compression versus transform compression. (10)
OR
- Q.2** Justify the use of transform compression in satellite image storage. (10)
- Q.3** Analyze the differences between line detection and edge detection techniques. (10)
OR
- Q.3** Compare supervised, unsupervised, and reinforcement learning techniques. (10)
- Q.4** Critically evaluate the impact of feature selection on the performance of a pattern recognition system. (10)
OR
- Q.4** Implement a basic pattern recognition classifier using the normal distribution. (10)
- Q.5** Describe the properties of the Normal Gaussian Distribution. (10)
OR
- Q.5** Define Bayesian Decision Theory and its key components. (10)
- Q.6** Evaluate the use of HMMs in speech recognition versus other sequence models. (10)
OR
- Q.6** What are the key components of a Hidden Markov Model (HMM)? (10)
