Roll No: | | | | | | | | | | | |

GAIN MORE KNOWLEDGE
REACH GREATER HEIGHTS

PRESIDENCY UNIVERSITY

Presidency University Act, 2013 of the Karnataka Act No. 41 of 2013 | Established under Section 2(f) of UGC Act, 1956
Approved by AICTE, New Delhi | Approved By BCI
Bengaluru

Mid Term Examinations - October 2026

Date: 08/10/2026 **Time:** 02:00 PM - 03:30 PM

Course Code: CSA3415 **Course Name:** Pattern Recognition

Semester: Fifth Semester **Max. Marks:** 50 **Weightage:** 50%

CO - Levels	CO1	CO2	CO3
Marks	90	50	40

PART A: Answer Following Questions. 10 M

Q.N.	Questions	M	CO	BT
1	Differentiate between feature selection and feature extraction in one line each, with an example.	2	CO2	BT2
2	Explain why label encoding may be unsuitable for nominal features.	2	CO2	BT2
3	Explain the terms feature vector and feature space with one example.	2	CO1	BT2
4	Differentiate between classification and clustering with one example each.	2	CO2	BT2
5	State two reasons why Pattern Recognition is needed in place of manual inspection.	2	CO1	BT2

PART B : Answer Any 1 Following Questions. 10 M

Q.N.	Questions	M	CO	BT
6	Explain the components of a Pattern Recognition system with a neat labelled block diagram, describing the function of each stage.	10	CO1	BT2
7	Illustrate the working of a complete Pattern Recognition system using a cat-vs-dog classification example, explaining what happens at each stage from image capture to the final decision.	10	CO1	BT2

PART C: Answer Any 1 Following Questions. 10 M

Q.N.	Questions	M	CO	BT
8	Define a feature and explain numeric, categorical and text-based features with one example each.	10	CO2	BT2
9	Explain nominal and ordinal features with examples, and encode Colour = {Red, Blue, Green} using label encoding and one-hot encoding.	10	CO2	BT2

PART D: Answer Any 1 Following Questions. 10 M

Q.N.	Questions	M	CO	BT
10	Compare supervised, unsupervised and semi-supervised learning in tabular form using any five points.	10	CO1	BT2
11	Define semi-supervised learning, explain why it is used, and describe the self-training approach.	10	CO1	BT2

PART E: Answer Any 1 Following Questions. 10 M

Q.N.	Questions	M	CO	BT
12	Explain Principal Component Analysis (PCA) and Linear Discriminant Analysis (LDA), compare them using any four points of difference, and justify which technique is better suited for a classification problem.	10	CO3	BT3
13	Define normalization and standardization. Explain the need for feature scaling in Pattern Recognition, and compare Min-Max normalization with Z-score standardization.	10	CO3	BT3