Code: 15A04803

R15

B.Tech IV Year II Semester (R15) Regular Examinations April 2019

PATTERN RECOGNITION & APPLICATIONS

(Electronics & Communication Engineering)

Time: 3 hours Max. Marks: 70

PART – A

(Compulsory Question)

*****

1 Answer the following: (10 X 02 = 20 Marks)

(a) Describe the need of feature extraction.
(b) Define supervised classification.
(c) What is meant by the likelihood ratio?
(d) What is the Bayes decision theory for continuous features?
(e) What are linear discriminant functions?
(f) Where do we prefer fuzzy classification? Give an example.
(g) What is the perceptron criterion function?
(h) What is meant by 'training' a classifier?
(i) Define what do you mean by similarity measures.
(j) How are unsupervised learning methods validated?

PART – B

(Answer all five units, 5 X 10 = 50 Marks)

UNIT – I

2 Explain the concept of classification and post processing in pattern recognition.

OR

3 Distinguish between supervised and unsupervised learning. When is the latter a preferred technique?

UNIT – II

4 In the context of the Bayes decision theory, what are the consequences, if any, of assuming statistical independence of the elements of the feature vector.

OR

5 Differentiate between linear and non-linear decision boundary.

UNIT – III

6 Discuss Fisher's linear discriminant with an illustration.

OR

7 What is meant by a metric? Discuss any two metrics that can be used as a metric for the nearest-neighbour method.

UNIT – IV

8 Explain two category and multi category cases of linear discriminant functions.

OR

9 Write about back propagation learning algorithm.

UNIT – V

10 In which case hidden Markov model parameter set to zero initially will remain at zero throughout the re-estimation procedure.

OR

11 What is meant by hierarchical clustering explain?

*****