



25024411

QP CODE: 25024411

Reg No :

Name :

M.Sc DEGREE (CSS) EXAMINATION, APRIL 2025

Fourth Semester

M Sc COMPUTER SCIENCE (AIDED)

ELECTIVE - CA820403 - PATTERN RECOGNITION

2019 ADMISSION ONWARDS

444328A4

Time: 3 Hours

Weightage: 30

Part A (Short Answer Questions)

*Answer any **eight** questions.*

Weight 1 each.

1. Define Bayes risk.
2. What is univariate density?
3. What is maximum likelihood estimation?
4. What is the central problem of Bayesian learning?
5. Give different areas where artificial neural network has its applications.
6. Define general feed forward operation.
7. What is Kullback-Leibler distance?
8. When a grammar is in Finite state?
9. What is supervised learning?
10. What is component densities?

(8×1=8 weightage)

Part B (Short Essay/Problems)

*Answer any **six** questions.*

Weight 2 each.

11. Explain unsupervised learning with an example.
12. Define Minimax criterion and derive Minimax risk.
13. How did you use the Bayesian approach to obtain the desired density in the multivariate Gaussian?





14. What are the practical problems in density estimation?
15. Describe simplex algorithm.
16. Prepare a short note on linear programming algorithms.
17. Mention the computation complexity in CART.
18. What are the different types of clustering algorithms?

(6×2=12 weightage)

Part C (Essay Type Questions)

*Answer any **two** questions.*

*Weight **5** each.*

19. Explain Multi-category case and Two-category case of classifiers.
20. Explain the density estimation through Parzen window approach.
21. Explain the k-Nearest-Neighbor Rule.
22. Explain in detail quadratic discriminant function.

(2×5=10 weightage)

