CBCS SCHEME

21AI71

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Seventh Semester B.E./B.Tech. Degree Examination, Dec.2025/Jan.2026
Advanced AI and ML

Time: 3 hrs. Max. Marks: 100

Note: Answer any FIVE full questions, choosing ONE full question from each module.

Important Note : 1. On completing your answers, compulsorily draw diagonal cross lines on the remaining blank pages.
2. Any revealing of identification, appeal to evaluator and /or equations written eg, 42+8 = 50, will be treated as malpractice.

Module-1

1 a. Explain simple reflex agent and model based reflex agent with neat schematic diagram. (10 Marks)

b. Describe model based, utility based agent and a general learning agent. (10 Marks)

OR

2 a. Summarize minimax algorithm in detail. (10 Marks)

b. Explain Alpha – Beta Pruning and Alpha - Beta Search algorithm. (10 Marks)

Module-2

3 a. Interpret uncertainty and rational decisions. (10 Marks)

b. Explain the language of propositions in probability assertions with an example. (10 Marks)

OR

4 a. Discuss probability axioms and their reasonableness in detail. (10 Marks)

b. Outline Baye's rule and its use with an example. (10 Marks)

Module-3

5 a. Explain the following :
i) Representational power of perceptrons
ii) Derivation of the Gradient descent rule. (10 Marks)

b. Explain the Back propagation algorithm in detail. (10 Marks)

OR

6 a. Explain the following :
i) Genetic operators ii) Genetic programming (12 Marks)

b. Explain the basics of Artificial Neural Networks. (08 Marks)

Module-4

7 a. Explain Association Rules (Association rule mining) in detail. (12 Marks)

b. Write a note on Matrix factorization with suitable example. (08 Marks)

OR

8 a. Explain Naïve Bayes model for sentiment classification in detail. (12 Marks)

b. Explain the challenges of text analytics. (08 Marks)

Module-5

9 a. What is Clustering? Explain in brief the different types of clustering. List the uses of clustering. (08 Marks)

b. Explain the following :
i) Distance-weighted nearest neighbor algorithm
ii) Locally weighted linear regression (12 Marks)

OR

10 a. Explain Radial basis functions in detail. (08 Marks)

b. Write a note on :
i) K-means algorithm
ii) Remarks on K-nearest neighbor algorithm (12 Marks)

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