



Mid Term (Odd) Semester Examination October 2024

Roll no.

Name of the Course and semester: BTECH CSE SPC. AI & ML 5th SEM

Name of the Paper: Artificial Intelligence and Machine Learning

Paper Code: TCS 512

Time: 1.5 hour

Maximum Marks: 50

Note:

- (i) Answer all the questions by choosing any one of the sub questions
- (ii) Each question carries 10 marks.

- Q1. (10 Marks) CO1
- a. Explain the structure of Intelligent agents in AI. Describe the different types of environments in which an intelligent agent can operate.
- OR
- b. Define Artificial Intelligence (AI). Discuss the historical development of AI, focusing on key turning points in its evolution. CO1
- Q2. (10 Marks) CO1
- a. Explain the importance of constraints in a CSP. Discuss its relevance in solving real-world problems. Include an example in your explanation.
- OR
- b. What is the purpose of search strategies in AI. Compare and contrast uninformed search strategies with informed search methods. CO1
- Q3. (10 Marks) CO1
- a. What is problem formulation in the context of problem-solving agents? Provide an example.
- OR
- b. Differentiate between deterministic and stochastic environments. CO1
- Q4. (10 Marks) CO2
- a. Explain the structure and semantics of First-Order Logic. How does it enhance knowledge representation compared to propositional logic? Illustrate with examples.
- OR
- b. Choose a real-world problem (such as a self-driving car or a recommendation system). Explain how Reinforcement Learning or Inductive Learning can be applied to solve the problem. Detail the decision-making process and how learning occurs over time. CO2
- Q5. (10 Marks) CO2
- a. Discuss how knowledge is represented using Propositional Logic. Differentiate between Propositional Logic and First-Order Logic.
- OR
- b. What is the role of Planning in intelligent agents? Describe in detail the various forms of learnings used by the agents. CO2