Roll No:
Date: __/__/____

St. Claret College

Autonomous, Bengaluru

UG END SEMESTER EXAMINATION-NOVEMBER 2025
BCA III SEMESTER
CA 3225: ARTIFICIAL INTELLIGENCE

9

TIME: 3 hours. **MAX. MARKS: 80**

This paper contains TWO printed pages and FOUR parts

Instructions:
1. **Verify and ensure that the question paper is completely printed.**
2. **Any discrepancies or questions about the exam paper must be reported to the COE within 1 hour after the examination.**
3. **Students must check the course title and course code before answering the questions.**

PART-A

Answer ALL questions. Each answer carries ONE mark. **[1 x 10 = 10]**

1. In the Wumpus world, the stench indicates:
   a) Gold nearby b) Pit nearby c) Wumpus nearby d) Breeze nearby
2. The rational agent is one that:
   a) Always learns from experience b) Always takes the action that maximizes expected performance
   c) Always acts randomly d) Always takes the fastest action
3. Which of the following is an environment type in AI?
   a) Static b) Dynamic c) Discrete d) All of the above
4. Which of these is a blind (uninformed) search?
   a) BFS b) A* c) Best-first d) AO*
5. Minimax is used in:
   a) Game playing b) Scheduling c) Path planning d) Expert systems
6. SEO in AI context refers to:
   a) Search Engine Optimization b) System Execution Operation
   c) Semantic Encoding Output d) Search Execution Order
7. Predicate logic adds which feature to propositional logic?
   a) Variables and quantifiers b) More truth tables c) Probabilities d) Learning
8. Forward chaining starts from:
   a) Goals b) Known facts c) Hypotheses d) Unification
9. NLP (Natural Language Processing) deals with:
   a) Human language understanding b) Robotics control
   c) Vision systems d) Planning algorithms
10. One major ethical issue in AI is:
    a) Data privacy and bias b) Fast algorithms c) Hardware cost d) User interface design

PART-B

Answer any FIVE questions. Each answer carries TWO marks. **[2 x 5 = 10]**

11. Define Artificial Intelligence.
12. Explain about problem-solving agent
13. What is an uninformed search? Give an example.
14. Define SEO.
15. What is truth maintenance in AI?
16. What is a deep neural network?
17. Give one example of an expert system.

PART-C

Answer any FOUR questions. Each answer carries FIVE marks. **[5 x 4 = 20]**

18. Explain vacuum cleaner problem by considering initial state and goal state.
19. Write a short note on knowledge-based agents.
20. Explain the working of Best-First Search algorithm with a suitable example.
21. Differentiate between informed and uninformed search techniques.
22. Explain forward chaining and backward chaining with suitable examples.
23. Explain about robotics and its types.

PART-D

Answer any FOUR questions. Each answer carries TEN marks. **[10 x 4 = 40]**

24. Describe the architecture of knowledge-based agents and explain the working of the Wumpus World as an example.
25. Define Artificial Intelligence. Explain in detail the concept of intelligent agents — their structure, environment types, and characteristics with neat diagrams.
26. Explain propositional logic and first-order predicate logic in detail. Compare their syntax, semantics, and expressiveness.
27. Explain about Handling uncertainties: Non-monotonic reasoning, Probabilistic reasoning
28. Explain the domains or fields of AI in detail.
29. Explain Natural Language Processing (NLP) its stages, challenges, and applications in modern systems.