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| **University of Kerala** | | |
| Discipline: COMPUTER SCIENCE |  | Time:2Hours (120Mins.) |
| Course Code: UK1DSCCSC107 |  | TotalMarks:56 |
| Course Title: INTRODUCTION TO ARTIFICIAL INTELLIGENCE |  |  |
| Type of Course: DSC |  |  |
| Semester:1 |  |  |
| AcademicLevel:100-199 |  |  |
| TotalCredit:4,Theory:4Credit, Practical:0Credit |  |  |

Part A.6Marks.Time: 5Minutes

Objective Type. 1MarkEach.AnswerAllQuestions

(Cognitive Level: Remember/Understand)

| **Qn. No** | **Question** | **Course**  **Outcome(CO)** |
| --- | --- | --- |
| 1 | Who introduced the concept of intelligent agents in AI? | CO1 |
| 2 | Define an intelligent agent. | CO4 |
| 3 | What is the Travelling Salesman Problem (TSP)? | CO4 |
| 4 | Define reinforcement learning. | CO4 |
| 5 | What is the goal of adversarial search? | CO1 |
| 6 | Name two tools commonly used for AI development. | CO2 |

PartB.10Marks.Time: 20Minutes

Two-Three sentences. 2MarksEach.AnswerAllQuestions

(Cognitive Level: Understand/Apply)

| **Qn. No** | **Question** | **Course**  **Outcome(CO)** |
| --- | --- | --- |
| 7 | List the key features of Artificial Intelligence. | CO1 |
| 8 | Explain the concept of uninformed search strategies with an example. | CO2 |
| 9 | Describe the characteristics of intelligent agents. | CO3 |
| 10 | What are some uses of Prolog in AI? | CO4 |
| 11 | Briefly describe the role of forward chaining in AI systems. | CO4 |

Part C.16 Marks.Time: 35 Minutes

Short Answer. 4Marks Each.Answer all 4questions, choosing among options within each question.

(CognitiveLevel:Apply/Analyse)

| **Qn. No** | **Question** | **Course**  **Outcome(CO)** |
| --- | --- | --- |
| 12 | a. Differentiate between Breadth-First Search (BFS) and Depth-First Search (DFS). OR |  |
|  | b. Explain the advantages and limitations of Depth Limited Search. |  |
| 13 | 1. Explain local search and provide an example of its application.   OR |  |
|  | b. Describe how optimization techniques are applied in local search problems. |  |
| 14 | 1. Discuss the key elements of propositional logic.   OR |  |
|  | b. Explain the significance of predicate logic in AI and give examples of its applications. |  |
| 15 | 1. Describe the simulated annealing algorithm and its applications in AI.   OR |  |
|  | b. Explain the concept of genetic algorithms and provide a real-world example. |  |

PartD.24Marks.Time: 60Minutes

Long Answer. 6Marks Each.Answer all 4questions, choosing among options within each question.(CognitiveLevel:Analyse/Evaluate/Create)

| **Qn. No** | **Question** |
| --- | --- |
| 16 | 1. Explain alpha-beta pruning and its role in adversarial search.   OR |
|  | b. Describe the minimax algorithm and discuss its importance in game AI. |
| 17 | 1. Describe the process of formulating problems in AI with examples.   OR |
|  | b. Explain the role of constraints in AI problem formulation and solving. |
| 18 | 1. Compare uninformed and informed search strategies, providing examples of each.   OR |
|  | b. Describe how heuristic functions enhance the effectiveness of informed search strategies. |
| 19 | 1. Explain the structure and functioning of decision trees in machine learning.   OR |
|  | b. Describe the learning through backpropagation in neural networks . |