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KAMALA INSTITUTE OF TECHNOLOGY & SCIENCE, SINGAPUR
23AM28PC403

II.B. Tech. II. Semester Regular Examinations, June- 2025

INTRODUCTION TO ARTIFICIAL INTELLIGENCE

(AIML)

Time: 3 Hours

Max. Marks: 60

Note: Question paper consists of Part-A & Part-B.

i) **Part-A** for 10M, ii) **Part-B** for 50marks

- Part A** is compulsory, consists of 10 sub questions from all units carrying equal marks.
- Part-B** consists of **10 questions** (numbered from 2 to 11) carrying **10marks** each. From each unit there are 2 questions and the students should answer one of them. Hence the student should answer **5 questions** from **Part-B**.

PART-A			(10Marks)																			
Q. No	Questions	Marks	BTL																			
1.a)	Explain PEAS for any one real time agent.	1	1																			
1.b)	Outline the architecture of an agent.	1	1																			
1.c)	Illustrate the operations performed by Knowledge Based Agent.	1	1																			
1.d)	Define Inference. What are the different Rules of Inference?	1	1																			
1.e)	Make use of Quantifiers Represent the following sentence in First Order Logic. “Every man respects his parent ”.	1	1																			
1.f)	What is Ontological Engineering?	1	1																			
1.g)	What is planning?	1	1																			
1.h)	Illustrate the Challenge and limitations in planning	1	1																			
1.i)	What is uncertain domain?	1	1																			
1.j)	Write any three applications of Bayesian network.	1	1																			
PART-B			(50Marks)																			
Q.No.	Questions	Marks	BTL																			
2. a)	Categorize different types of artificial intelligent agents and inspect the architecture of model based and goal-based agents.	5M	4																			
b)	Interpret the below given 8-puzzle problem and make use of heuristic search algorithm to find the solution. <table><tr><td>2</td><td>8</td><td>3</td></tr><tr><td>1</td><td>6</td><td>4</td></tr><tr><td>7</td><td></td><td>5</td></tr></table> Initial State <table><tr><td>1</td><td>2</td><td>3</td></tr><tr><td>8</td><td></td><td>4</td></tr><tr><td>7</td><td>6</td><td>5</td></tr></table> Final State	2	8	3	1	6	4	7		5	1	2	3	8		4	7	6	5	5M	2	
2	8	3																				
1	6	4																				
7		5																				
1	2	3																				
8		4																				
7	6	5																				
OR																						
3. a)	Distinguish between the uninformed search strategies BFS, DFS with an example?	5M	4																			
b)	Explain the hill climbing search strategy with an example?	5M	2																			
4. a)	Explain Min-Max algorithm and Alpha-Beta pruning with an example.	5M	3																			
b)	Explain Atomic sentences and Complex sentences?	5M	2																			
OR																						

5. a)	Solve Crypt-arithmetic problem using CSP TWO+TWO = FOUR.	5M	3
b)	Explain proof by resolution with an example.	5M	2
6. a)	Distinguish between propositional verses first order logic.	5M	4
b)	Explain the forward chaining and backward chaining algorithm with an example.	5M	3
OR			
7. a)	Examine the Wumpus world problem and explain with neat diagram.	5M	4
b)	Make use of Knowledge Representation and Explain about Categories and Objects.	5M	3
8. a)	Interpret any two-planning algorithm that uses state space search.	5M	4
b)	Explain Hierarchical planning with an Example.	5M	2
OR			
9. a)	Interpret any two classical planning Approaches with an example	5M	4
b)	Explain in detail about Planning graphs with an Example.	5M	2
10.a)	State Baye's theorem and Solve the given application, Bag A contains 1 white ball and 6 red balls, while another bag contains 4 white balls and 3 red balls. One of the bags is randomly selected, and a ball is drawn from it, which turns out to be white. What is the probability that the white ball was drawn from Bag A?	5M	3
b)	Explain about inference in Bayesian network with an Example.	5M	2
OR			
11.a)	Solve the given application using Baye's theorem. In an exam, there is a problem that 60% of students know the correct answer. However, there is 15% chance that a student picked the wrong answer even if he/she knows it and there is also a 25% chance that a student does not know the answer but guessed it correctly. If a student did get the problem right, what is the chance that this student really knows the answer? What if he/she did not get it right?	5M	3
b)	Explain about semantics of Bayesian network with an Example.	5M	2

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