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KAMALA INSTITUTE OF TECHNOLOGY & SCIENCE, SINGAPUR

23CS28PC502

III.B. Tech. I. Semester Regular Examinations, November- 2025

ARTIFICIAL INTELLIGENCE

(CSE)

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)	Define intelligent agent and list its types.	1M	1		
1.b)	Differentiate between informed and uninformed search strategies.	1M	2		
1.c)	Explain the concept of alpha-beta pruning in adversarial search.	1M	2		
1.d)	What is a constraint satisfaction problem (CSP)?	1M	1		
1.e)	Mention the difference between propositional and first-order logic.	1M	2		
1.f)	Define unification in first-order inference.	1M	1		
1.g)	What is ontological engineering in AI?	1M	2		
1.h)	Explain the concept of reasoning with default information.	1M	3		
1.i)	Define Bayes' theorem and its significance in AI.	1M	2		
1.j)	What are Bayesian networks used for?	1M	2		
PART-B				(50Marks)	

Q.No	Questions	Marks	BTL
2. a)	Explain the architecture of an intelligent agent.	5M	2
b)	Compare breadth-first and depth-first search with examples.	5M	3
OR			
3. a)	Illustrate A* search algorithm with a suitable example.	5M	3
b)	Discuss heuristic functions and their role in informed search.	5M	4
OR			
4. a)	Explain the working of alpha-beta pruning in game playing.	5M	3
b)	Solve a sample CSP using backtracking search.	5M	4
OR			
5. a)	Write short notes on the structure of problems in CSP.	5M	2
b)	Discuss propositional theorem proving using resolution.	5M	4
OR			
6. a)	Explain the syntax and semantics of first-order logic.	5M	2
b)	Demonstrate forward and backward chaining with examples.	5M	3
OR			
7. a)	Compare propositional inference and first-order inference.	5M	4
b)	Describe the process of unification and lifting in AI.	5M	3
8. a)	Explain categories and objects used in knowledge representation.	5M	2
b)	Discuss algorithms for planning with state-space search.	5M	4
OR			
9. a)	Summarize the concept of reasoning with default information.	5M	3
b)	Analyze different classical planning approaches.	5M	5
10.a)	Apply Bayes' rule to solve a simple probability-based problem.	5M	3
b)	Explain approximate inference in Bayesian networks.	5M	4
OR			
11.a)	Discuss Dempster-Shafer theory for uncertain reasoning.	5M	5
b)	Compare probabilistic and non-probabilistic reasoning approaches.	5M	4