SIDDHARTH INSTITUTE OF ENGINEERING & TECHNOLOGY:: PUTTUR
(AUTONOMOUS)
B.Tech. II Year I Semester Regular & Supplementary Examinations November-2025
PRINCIPLES OF ARTIFICIAL INTELLIGENCE
(Common to CAD, CSM & CAI)

Time: 3 Hours   Max. Marks: 70

PART-A
(Answer all the Questions 10 x 2 = 20 Marks)

1	a	What are the key factors that determine the rationality of an agent at any given time?	CO1	L1	2M
	b	State and list PEAS for Medical diagnosis system.	CO1	L2	2M
	c	Differentiate between A* and AO*algorithm.	CO2	L2	2M
	d	List and define how the search algorithms are classified.	CO2	L1	2M
	e	What is Uncertainty in Artificial Intelligence?	CO3	L1	2M
	f	List the kind of knowledge which needs to be represented in AI systems.	CO3	L1	2M
	g	Compare Propositional vs. First-Order Logic Inferences.	CO4	L2	2M
	h	List the four major factors on which the component of an agent can be improved by learning from data.	CO4	L1	2M
	i	State what is meta knowledge heuristic.	CO5	L1	2M
	j	List the Pros and cons of knowledge acquisition.	CO5	L1	2M

PART-B
(Answer all Five Units 5 x 10 = 50 Marks)

UNIT-I

2	a	Analyze in what ways can an agent's rational behavior be influenced by its performance measure, prior knowledge, actions, and percept sequence.	CO1	L3	5M
	b	Illustrate the list of sequence done by the intelligent agent to maximize the performance measure.	CO1	L3	5M

OR

3	What are Heuristic algorithms? Analyze in detail the different types of Heuristic algorithms with example.	CO2	L2	10M

UNIT-II

4	Explain the different types of agent programs and their internal structures which influence the efficiency and autonomy of intelligent agents.	CO1	L2	10M

OR

5	a	Discuss how efficient the problem reduction search helps in problem-solving technique of AI.	CO2	L2	5M
	b	State Game Tree and discuss the concepts for defining a Game Tree with an example.	CO2	L3	5M

UNIT-III

6	a	Illustrate AI knowledge cycle with neat diagram.	CO3	L3	5M
	b	Explain in detail about Dempster Shafer Theory with an example.	CO3	L2	5M

OR

7	Analyze the different approaches to knowledge representation.	CO3	L3	10M

UNIT-IV

8	a	State Bayes' theorem. Describe in detail how it is utilized for statistical learning methods in AI.	CO4	L3	6M
	b	Discuss the various forms of learning in detail.	CO4	L2	4M

OR

9	Demonstrate Explanation-based learning working with neat architecture diagram and example.	CO4	L3	10M

UNIT-V

10	a	Describe the Architecture of expert systems in detail with neat diagram.	CO5	L3	5M
	b	Explain the goals and role of knowledge acquisition in AI explain with a real time examples.	CO5	L2	5M

OR

11	Describe MYCIN with its development, key features, and impact.	CO5	L3	10M

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