Code No: (R22AI402PC)	R22	H.T.No.			8	R					

CMR ENGINEERING COLLEGE: : HYDERABAD
UGC AUTONOMOUS
II–B.TECH–II–Semester End Examinations (Supply) -December- 2025
ARTIFICIAL INTELLIGENCE
(CSM)

[Time: 3 Hours] **[Max. Marks: 60]**

Note: This question paper contains two parts A and B.
Part A is compulsory which carries 10 marks. Answer all questions in Part A.
Part B consists of 5 Units. Answer any one full question from each unit. Each question carries 10 marks and may have a, b, c as sub questions.

PART-A **(10 Marks)**

1.	a)	What is a problem-solving agent?	[1M]
	b)	What is local search in AI?	[1M]
	c)	Define stochastic search.	[1M]
	d)	Define propositional logic.	[1M]
	e)	Define non-monotonic reasoning.	[1M]
	f)	State Bayes' Rule.	[1M]
	g)	Define rote learning.	[1M]
	h)	What is a leaf node in a decision tree?	[1M]
	i)	What is an expert system?	[1M]
	j)	What is knowledge acquisition?	[1M]

PART-B **(50 Marks)**

2.	Explain the concept of agents and environments in artificial intelligence. Discuss how an agent perceives its environment and acts upon it. Provide examples of different types of agents.	[10M]
	OR	
3.	Describe the Depth-First Search (DFS) algorithm. Compare and contrast DFS with BFS.	[10M]
4.	Explain the process of constructing search trees in AI. Discuss the significance of search trees in problem-solving and provide an example to illustrate their use.	[10M]
	OR	
5.	Explain first-order logic (FOL) and its components. How does FOL extend propositional logic? Provide examples to illustrate the use of quantifiers in FOL.	[10M]
6.	Discuss the challenges of representing knowledge in uncertain domains. Explain how probability distributions and stochastic models are used to address these challenges.	[10M]
	OR	
7.	Explain Bayes' Rule and its significance in reasoning under uncertainty. Provide examples to support your answer.	[10M]
8.	Describe Winston's learning program. Explain how it works and discuss its significance in the development of AI learning techniques.	[10M]
	OR	
9.	Describe the process of learning by taking advice in AI. How does this method work, and what are its benefits and drawbacks?	[10M]

10. Discuss the process of knowledge acquisition in the development of expert systems. What are the main challenges associated with knowledge acquisition, and how they can be addressed? [10M]

OR

11. Describe the concept of an expert system shell. Provide examples of popular expert system shells and discuss their features. [10M]

****