Code No.: DS602PC	R20	H.T.No.			8	R						

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

[Time: 3 Hours] **[Max. Marks: 70]**

Note: This question paper contains two parts A and B.
Part A is compulsory which carries 20 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 **(20 Marks)**

1.	a)	What are the characteristics of well-defined problems in AI?	[2M]
	b)	Define problem-solving in the context of AI.	[2M]
	c)	Define propositional calculus	[2M]
	d)	Explain the difference between propositional logic and predicate logic.	[2M]
	e)	Discuss the role of knowledge acquisition in the development of an expert system.	[2M]
	f)	What are the main components of expert system architecture?	[2M]
	g)	Define recurrent neural networks.	[2M]
	h)	Define supervised learning and unsupervised learning.	[2M]
	i)	Define the semantic web.	[2M]
	j)	Discuss the limitations of traditional knowledge representation methods	[2M]

PART-B **(50 Marks)**

2.	Explain the Alpha-Beta Pruning technique. How does it optimize the minimax algorithm?	[10M]
	OR	
3.	What is iterative deepening search, and how does it differ from traditional depth-first and breadth-first searches?	[10M]
4.	How can logic-based methods be integrated with other knowledge representation techniques to create more robust AI systems?	[10M]
	OR	
5.	Describe frames as a method of knowledge representation. What are the key components of a frame?	[10M]
6.	How can uncertainty measures be integrated into expert systems to enhance their reliability and effectiveness?	[10M]
	OR	
7.	Compare Bayesian belief networks and Dempster-Shafer theory in terms of their approaches to handling uncertainty.	[10M]
8.	Explain the process of learning decision trees. What are the key components of a decision tree?	[10M]
	OR	
9.	Explain the concept of support vector machines and how they are used for classification tasks.	[10M]
10.	Compare and contrast top-down parsers, bottom-up parsers, and chart parsers.	[10M]
	OR	
11.	How do advanced knowledge representation techniques contribute to the development of intelligent agents and systems?	[10M]

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