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

CMR ENGINEERING COLLEGE: : HYDERABAD
UGC AUTONOMOUS
II–B.TECH–II–Semester End Examinations (Regular) -July- 2024
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)	Explain the term "rational agent."	[1M]
b)	How does a generic best-first search algorithm differ from A*?	[1M]
c)	What is alpha-beta pruning?	[1M]
d)	State Bayes' Theorem.	[1M]
e)	List out various knowledge representation schemes.	[1M]
f)	What is a semantic network?	[1M]
g)	Define a decision tree.	[1M]
h)	What is learning by taking advice?	[1M]
i)	Define domain knowledge in the context of expert systems.	[1M]
j)	What is an expert system shell?	[1M]

PART-B **(50 Marks)**

2.	Explain the A* search algorithm. How does it guarantee finding the optimal solution? Provide an example to illustrate your answer.	[10M]
	OR	
3.	Discuss the Backtracking search method for solving Constraint Satisfaction Problem.	[10M]
4.	Describe the minimax search algorithm. How does it help in making optimal decisions? Provide an example.	[10M]
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5.	Explain the backward chaining inference technique. Compare and contrast it with forward chaining, providing examples to illustrate the differences.	[10M]
6.	Describe the structure and components of Bayesian Networks. Explain with an example.	[10M]
	OR	
7.	Describe non-monotonic reasoning and its significance in AI. How does it differ from monotonic reasoning? Provide examples to illustrate the concept.	[10M]
8.	Explain the concept of learning from examples in AI.	[10M]
	OR	
9.	Explain the concept of decision trees in AI. Discuss how decision trees are constructed and used for classification tasks.	[10M]
10.	Describe the typical structure of an expert system, including its main components.	[10M]
	OR	
11.	Provide an overview of the different applications of expert systems across various industries.	[10M]

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