R22

Code No: 184BH

JAWAHARLAL NEHRU TECHNOLOGICAL UNIVERSITY HYDERABAD
B. Tech II Year II Semester Examinations, December – 2024/ January -2025
INTRODUCTION TO ARTIFICIAL INTELLIGENCE
(Common to CSE(AI&ML), AI&DS, AI&ML)

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

Note: This question paper contains two parts A and B.
i) **Part- A** for 10 marks, ii) **Part - B** for 50 marks.

- Part-A is a compulsory question which consists of ten sub-questions from all units carrying equal marks.
- Part-B consists of **ten questions** (numbered from 2 to 11) **carrying 10 marks each**. From each unit, there are two questions and the student should answer one of them. Hence, the student should answer five questions from Part-B.

PART- A

(10 Marks)

1.a)	What is intelligent agent?	[1]
b)	What is well defined problem?	[1]
c)	Define constraint satisfaction problem.	[1]
d)	Write the characteristics of propositional logic.	[1]
e)	How does backward chaining handle multiple goals?	[1]
f)	Define atomic and complex sentence in first order logic.	[1]
g)	What are the advantages of using planning graphs?	[1]
h)	Explain about multi agent planning.	[1]
i)	Explain the Bayesian Networks.	[1]
j)	Assess the importance of relational probability in AI applications.	[1]

PART-B

(50 Marks)

2.a)	Explain about greedy best-first search technique.	
b)	What is simple problem solving agent? Explain it briefly.	[5+5]
	OR	
3.a)	What simulated annealing search? Explain.	
b)	Explain Breadth First Search algorithm with an example.	[5+5]
4.a)	How an intelligent backtracking is better than chronological backtracking explain with an example?	
b)	Explain Local search method for constraint satisfaction problem.	[5+5]
	OR	
5.a)	What is Resolution? Explain Resolution algorithm for Proposition logic?	
b)	Explain Backtracking search for Constraint satisfaction problem.	[5+5]

6.a) Explain forward chaining in first order logic.

b) What is Ontological engineering? Explain. [5+5]

OR

7.a) Differentiate between propositional logic and first order logic.

b) What are the Categories and Objects and explain with example. [5+5]

8.a) Explain about analysis of planning approaches.

b) Explain forward state space search with an example. [5+5]

OR

9.a) Discuss about hierarchical planning with an example.

b) Comment on the complexity of classical planning. [5+5]

10.a) Explain the process of probabilistic reasoning in detail. Discuss how Bayesian networks utilize probabilistic reasoning to handle uncertainty in real-world applications.

b) Explain why conditional independence is useful for simplifying complex Bayesian networks. [5+5]

OR

11.a) Evaluate the effectiveness of using relational and first-order probability models in AI.

b) Explain the method for construction of Bayesian networks. [5+5]

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