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**BTECH**  
**(SEM V) THEORY EXAMINATION 2024-25**  
**ARTIFICIAL INTELLIGENCE**

TIME: 3 HRS

M.MARKS: 100

**Note:** Attempt all Sections. In case of any missing data; choose suitably.

## SECTION A

**1. Attempt all questions in brief.** **2 x 10 = 20**

Q no.	Question	CO	Level
a.	Define Artificial Intelligence.	1	K1
b.	What are the characteristics of intelligent agents?	1	K2
c.	What is the role of heuristics in problem-solving?	2	K2
d.	Differentiate between informed and uninformed search strategies.	2	K2
e.	Explain First-Order Predicate Logic.	3	K2
f.	What is ontological engineering?	3	K2
g.	Describe the architecture of intelligent agents.	4	K1
h.	What is trust in multi-agent systems?	4	K1
i.	Define natural language processing.	5	K1
j.	What is the role of machine translation in AI?	5	K2

## SECTION B

**2. Attempt any three of the following:** **10 x 3 = 30**

a.	Analyze the role of intelligent agents in modern AI applications.	1	K2
b.	Apply alpha-beta pruning to a game-playing scenario and explain the steps.	2	K2
c.	Compare forward chaining and backward chaining in reasoning systems.	3	K3
d.	Discuss the impact of software agents in automating tasks.	4	K2
e.	Formulate a plan for integrating AI in hardware perception systems.	5	K4

## SECTION C

**3. Attempt any one part of the following:** **10 x 1 = 10**

a.	Illustrate the problem-solving approach to AI problems with an example.	1	K3
b.	Compare and contrast reactive and deliberative intelligent agents.	1	K4

**4. Attempt any one part of the following:** **10 x 1 = 10**

a.	Evaluate the effectiveness of stochastic games in decision-making.	2	K3
b.	Discuss the limitations of local search algorithms and suggest improvements.	2	K4

**5. Attempt any one part of the following:** **10 x 1 = 10**

a.	Evaluate the role of mental events and objects in AI reasoning.	3	K3
b.	Design a knowledge-based system using resolution techniques.	3	K4

**6. Attempt any one part of the following:** **10 x 1 = 10**

a.	Apply argumentation frameworks in a real-world scenario.	4	K3
b.	Analyze communication protocols used by intelligent agents.	4	K4

**7. Attempt any one part of the following:** **10 x 1 = 10**

a.	Evaluate challenges in implementing AI-based robotic systems.	5	K3
b.	Apply AI techniques to design an information retrieval system.	5	K4