



PAPER ID-311194

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Subject Code: BCA1501

Roll No.

BTECH
(SEM V) THEORY EXAMINATION 2025-26
ARTIFICIAL INTELLIGENCE

TIME: 3 HRS.

M.MARKS: 70

Note: 1. Attempt all Sections. If require any missing data; then choose suitably.

SECTION A

2 x 7 = 14

1. Attempt all questions in brief.		CO	Level
Q no.	Question		
a.	What is meant by intelligent behavior?	1	K1
b.	Define state space in Artificial Intelligence	1	K1
c.	Define a local search?	2	K2
d.	Define optimal decision in games.	2	K2
e.	Define unification in Prolog.	3	K2
f.	Define rational agent.	4	K1
g.	Explain the concept of speech recognition.	5	K1

SECTION B

7 x 3 = 21

2. Attempt any three of the following:			
a.	Discuss the role of AI in the future of technology and society.	1	K2
b.	Solve a problem using depth-first search (DFS) and show the path explored.	2	K2
c.	Explain the role of events, mental events, and mental objects in intelligent agents' reasoning.	3	K2
d.	Explain the coordination mechanisms used in multi-agent systems.	4	K2
e.	Describe the role of information retrieval systems in modern AI applications.	5	K2

SECTION C

7 x 1 = 7

3. Attempt any one part of the following:			
a.	Explain the transition of Artificial Intelligence from rule-based systems to machine learning-based systems.	1	K3
b.	Explain the concept of an environment in which an AI agent operates.	1	K3
4. Attempt any one part of the following:			
a.	Explain the formulation and solution techniques of Constraint Satisfaction Problems (CSP) with examples.	2	K2
b.	Discuss stochastic games and the role of probability in decision-making.	2	K3
5. Attempt any one part of the following:			
a.	Demonstrate resolution principle by proving a simple theorem in propositional logic.	3	K2
b.	Create a forward chaining example in a rule-based system to determine eligibility for a scholarship.	3	K2
6. Attempt any one part of the following:			
a.	Explain the complete architecture of intelligent agents including deliberative, reactive, and hybrid layers.	4	K3
b.	Describe how learning agents adapt their behavior over time.	4	K3
7. Attempt any one part of the following:			
a.	Explain planning algorithms in AI, such as STRIPS and hierarchical task networks.	5	K2
b.	Analyze the speech recognition techniques including acoustic modeling and language modeling.	5	K3