PAPER ID-310318

Roll No:

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

TIME: 3 HRS   **M.MARKS: 70**

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

SECTION A

1.   Attempt *all* questions in brief.   **2 x 07 = 14**

Q no.	Question	CO	Level
a.	Define Artificial Intelligence.	1	2
b.	What is a deterministic environment in AI?	1	2
c.	Define problem-solving in the context of AI.	2	2
d.	Define an optimization problem in AI.	2	2
e.	What is First Order Predicate Logic (FOPL)?	3	2
f.	Define negotiation in the context of software agents.	4	2
g.	Explain the concept of machine translation.	5	2

SECTION B

2.   Attempt any *three* of the following: **07 x 3 = 21**

Q no.	Question	CO	Level
a.	Discuss the role of sensors and actuators in Intelligent Agent systems with suitable examples.	1	3
b.	Explain the difference between uninformed and informed search strategies with examples.	2	3
c.	Explain the categories and objects in ontological engineering with examples.	3	3
d.	Describe the negotiation process in multi-agent systems with examples.	4	3
e.	Explain the architecture and functioning of speech recognition systems.	5	2

SECTION C

3.   Attempt any *one* part of the following: **07 x 1 = 07**

Q no.	Question	CO	Level
a.	Explain the role of AI in tackling global challenges like climate change and resource management.	1	3
b.	Explain the role of AI in enhancing decision-making processes in business applications.	1	3

4.   Attempt any *one* part of the following: **07 x 1 = 07**

Q no.	Question	CO	Level
a.	Discuss the structure and components of a Constraint Satisfaction Problem (CSP).	2	3
b.	Discuss the alpha-beta pruning technique and how it improves game search efficiency.	2	3

5.   Attempt any *one* part of the following: **07 x 1 = 07**

Q no.	Question	CO	Level
a.	Compare semantic networks and frames as knowledge representation methods. Explain how FOPL is used for representing knowledge in AI systems.	3	3
b.	Explain how FOPL is used for representing knowledge in AI systems.	3	3

6.   Attempt any *one* part of the following: **07 x 1 = 07**

Q no.	Question	CO	Level
a.	Explain how argumentation is used for resolving conflicts in multi-agent systems.	4	3
b.	Discuss the use of trust metrics in multi-agent decision-making.	4	3

7.   Attempt any *one* part of the following: **07 x 1 = 07**

Q no.	Question	CO	Level
a.	Discuss the challenges of multilingual support in machine translation systems.	5	2
b.	Explain how tokenization impacts natural language processing tasks.	5	2