Dr. A.P.J. Abdul Kalam Technical University (AKTU) · B.Tech Theory Examination

Artificial Intelligence

BCIT054 · Jan 2025

Time: 3 Hours **Max. Marks: 70**

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

SECTION A

1(a)	Define Artificial Intelligence.	2	U1
1(b)	What is a deterministic environment in AI?	2	U1
1(c)	Define problem-solving in the context of AI.	2	U2
1(d)	Define an optimization problem in AI.	2	U2
1(e)	What is First Order Predicate Logic (FOPL)?	2	U3
1(f)	Define negotiation in the context of software agents.	2	U4
1(g)	Explain the concept of machine translation.	2	U5

SECTION B

2(a)	Discuss the role of sensors and actuators in Intelligent Agent systems with suitable examples.	7	U1
2(b)	Explain the difference between uninformed and informed search strategies with examples.	7	U2
2(c)	Explain the categories and objects in ontological engineering with examples.	7	U3
2(d)	Describe the negotiation process in multi-agent systems with examples.	7	U4
2(e)	Explain the architecture and functioning of speech recognition systems.	7	U5

SECTION C

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3(a)	Explain the role of AI in tackling global challenges like climate change and resource management.	7	U1
3(b)	Explain the role of AI in enhancing decision-making processes in business applications.	7	U1
4(a)	Discuss the structure and components of a Constraint Satisfaction Problem (CSP).	7	U2
4(b)	Discuss the alpha-beta pruning technique and how it improves game search efficiency.	7	U2
5(a)	Compare semantic networks and frames as knowledge representation methods. Explain how FOPL is used for representing knowledge in AI systems.	7	U3
5(b)	Explain how FOPL is used for representing knowledge in AI systems.	7	U3
6(a)	Explain how argumentation is used for resolving conflicts in multi-agent systems.	7	U4
6(b)	Discuss the use of trust metrics in multi-agent decision-making.	7	U4
7(a)	Discuss the challenges of multilingual support in machine translation systems.	7	U5
7(b)	Explain how tokenization impacts natural language processing tasks.	7	U5

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