

PARUL UNIVERSITY
FACULTY OF ENGINEERING & TECHNOLOGY
B.Tech/ M.Tech . Winter 2024 - 25 Examination

Semester: 5**Subject Code: 303105307****Subject Name: Artificial Intelligence****Date: 18/11/2024****Time: 2:00pm to 4:30pm****Total Marks: 60****Instructions:**

1. This question paper comprises of two sections. Write answer of both the sections in separate answer books.
2. From Section A, **Q.1 is compulsory, attempt any THREE from Q. 2 to Q. 5**
3. From Section B, **Q.1 is compulsory, attempt any THREE from Q. 2 to Q. 5**
4. Make suitable assumptions wherever necessary.
5. Start new question on new page.

Section-A (30 Marks)					
Q.1	Objective Type Questions - (State, Define, List, etc) (All are compulsory and each of two marks)	(6)	CO	PO	Bloom's Taxonomy
	1. Define Artificial Intelligence.		1	1	Remembering
	2. State two advantages of heuristic search in AI.		3	2	Understanding
	3. List the basic operations of fuzzy sets.		3	2	Remembering
Q.2	Answer the following questions.				
	A) Differentiate between hill climbing and best-first search.	(3)	3	2	Analyzing
	B) Discuss the architecture and functionality of intelligent agents.	(5)	1	1	Evaluating
Q.3	Answer the following questions.				
	A) Describe the "justification-based truth maintenance systems".	(3)	3	2	Understanding
	B) Explain how spell checking is implemented in NLP systems.	(5)	4	3	Understanding
Q.4	Answer the following questions.				
	A) Explain non-monotonic reasoning in AI.	(3)	3	2	Understanding
	B) Explain Bayes' theorem and its importance in AI.	(5)	3	2	Understanding
Q.5	Answer the following questions.				
	A) Describe fuzzy logic and its application in decision-making.	(3)	3	2	Understanding
	B) Describe the architecture of neural network.	(5)	3	1	Understanding
Section-B (30 Marks)					
Q.1	Objective Type Questions - (State, Define, List, etc) (All are compulsory and each of two marks)	(6)			
	1. List two applications of AI in E-commerce		1	1	Remembering
	2. Define the term "generate-and-test" search technique.		3	2	Remembering
	3. Define "semantic analysis" in NLP.		4	3	Remembering
Q.2	Answer the following questions.				
	A) Explain ISA hierarchy in AI.	(3)	2	1	Understanding
	B) Discuss the future scope of AI and the challenges it faces.	(5)	1	6	Evaluating
Q.3	Answer the following questions.				
	A) Differentiate between propositional logic and predicate logic.	(3)	2	1	Analyzing
	B) Change the following facts using first order predicate logic: C) Krishna loves music. D) All musician and some dancers enjoy the music.	(5)	2	1	Understanding

	E) Some people like to watch football but mostly like to watch cricket. F) All children like chocolate therefore they suffer from cavity. G) If you work hard then definitely you should get good marks				
Q.4	Answer the following questions.				
	A) Describe the role of hidden Markov models in AI.	(3)	3	2	Understanding
	B) Discuss the role of neural networks in AI, highlighting their architecture and applications.	(5)	4	3	Evaluating
Q.5	Answer the following questions.				
	A) Differentiate between monotonic reasoning and non-monotonic reasoning.	(3)	3	2	Analyzing
	B) Discuss the main goals and challenges of Natural Language Processing (NLP).	(5)	1	6	Evaluating