

# GUJARAT TECHNOLOGICAL UNIVERSITY

BE - SEMESTER-VII EXAMINATION – SUMMER 2025

Subject Code:3171105

Date:23-05-2025

Subject Name: Introduction of Artificial Intelligence

Time:02:30 PM TO 05:00 PM

Total Marks:70

Instructions:

1. Attempt all questions.
2. Make suitable assumptions wherever necessary.
3. Figures to the right indicate full marks.
4. Simple and non-programmable scientific calculators are allowed.

		Marks
Q.1	(a) Define Artificial Intelligence (AI). Explain with any two reasons.	03
	(b) Describe the task domains of AI.	04
	(c) Explain Best first Search technique.	07
Q.2	(a) What is heuristic search technique?	03
	(b) Explain hill climbing and steepest ascent hill climbing technique.	04
	(c) Explain A* algorithm in detail.	07
	OR	
	(c) What is Production system? Write production rules for water jug problem.	07
Q.3	(a) What is alpha beta cut off in min max tree?	03
	(b) Define the term “agent”. Explain how agent interacts with environments.	04
	(c) Explain minimax algorithm with suitable example.	07
	OR	
Q.3	(a) What is Turing test?	03
	(b) Explain AND OR graph.	04
	(c) What is constraint satisfaction problem? Explain with crypt analysis problem domain.	07
Q.4	(a) How means end analysis helps in solving complex problem, explain with suitable example.	03
	(b) Explain process of unification briefly with example.	04
	(c) Explain the back-propagation algorithm and its application.	07
	OR	
Q.4	(a) What are AI techniques to solve a problem?	03
	(b) Write a short note on fuzzy logic.	04
	(c) What are the four basic types of agent program in any intelligent system? Explain how did you convert them into learning agents?	07
Q.5	(a) What is the purpose of planning in AI?	03
	(b) What are the components of a planning system?	04
	(c) Explain Goal stack planning for block world problem.	07
	OR	
Q.5	(a) Describe components of NLP.	03
	(b) Explain about Application areas of Natural Language Processing.	04
	(c) Describe steps in Natural Language Processing in detail.	07

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