

GUJARAT TECHNOLOGICAL UNIVERSITY

BE- SEMESTER-IV (NEW) EXAMINATION – WINTER 2024

Subject Code:3145201

Date:26-11-2024

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) Discuss the various application areas for artificial intelligence.	03
	(b) List out the different types of AI techniques with suitable examples.	04
	(c) Explain state space search representation using the water-jug problem.	07
Q.2	(a) Write a short note on the production system.	03
	(b) Explain the limitation of the Hill climbing algorithm.	04
	(c) Define artificial intelligence. List the task domain of artificial intelligence with an example.	07
	OR	
	(c) Explain: (i) Local maximum (ii) Plateau (iii) Ridge	07
Q.3	(a) What is Breadth first search?	03
	(b) Classify the problem solving algorithms in AI.	04
	(c) Explain Brute-Force algorithm.	07
	OR	
Q.3	(a) What is Best first search?	03
	(b) Differentiate between best first search and breadth first search.	04
	(c) Explain A* algorithm.	07
Q.4	(a) Explain Goal Stack Planning.	03
	(b) Differentiate declarative and procedural knowledge.	04
	(c) Summarize Forward State Space Planning with an example.	07
	OR	
Q.4	(a) Explain Recursive best first search.	03
	(b) What is heuristic search? Discuss with an example.	04
	(c) Summarize Backward State Space Planning with an example.	07
Q.5	(a) Differentiate supervised and unsupervised learning.	03
	(b) Explain how planning is different from search procedure.	04
	(c) Explain the State space search with the use of 8 Puzzle Problem.	07
	OR	
Q.5	(a) Explain Hierarchical Planning.	03
	(b) Explain planning problem	04
	(c) Show the alpha-beta cutoff in the min-max algorithm by drawing a suitable game tree.	07
