

Enrolment No./Seat No_____

GUJARAT TECHNOLOGICAL UNIVERSITY

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

Subject Code:3154202

Date:28-11-2024

Subject Name:Fundamentals of Artificial Intelligence

Time:10:30 AM TO 01:00 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) List various application domain of Artificial Intelligence with suitable example.	03
	(b) Discuss the role of Agents and Environments in Artificial Intelligence.	04
	(c) Compare and contrast Breadth first search and Depth first Search, highlighting major advantages and disadvantages.	07
Q.2	(a) List key challenges in Game playing with suitable example.	03
	(b) Elaborate the role of Adversarial search, in Game playing with suitable example.	04
	(c) Discuss Mini-max algorithm, with relevant features and applications.	07
	OR	
	(c) Define Alpha-Beta pruning and its relevance for AI applications in detail.	07
Q.3	(a) List key approaches to Knowledge Representation using Rules.	03
	(b) Explain the role of Logic Programming with the help of suitable example.	04
	(c) Compare and contrast Procedural Versus Declarative Knowledge, highlighting key features and limitations.	07
	OR	
Q.3	(a) Discuss the Certainty Factors and Rule- Base Systems in brief.	03
	(b) Explain the working of Non-Monotonic Reasoning with the help of suitable example.	04
	(c) Differentiate between Forward versus Backward Reasoning highlighting key features and limitations.	07
Q.4	(a) List key operations of fuzzy set with suitable example.	03
	(b) Discuss Membership function and its key features in detail.	04
	(c) Compare and contrast supervised learning and unsupervised learning, highlighting key features and limitations.	07
	OR	
Q.4	(a) Explain conventional set with suitable example.	03

	(b)	How Evaluation and Cross Validation is significant, discuss with example.	04
	(c)	Compare and contrast Linear Regression and K-nearest Neighbour, highlighting key features and limitations.	07
Q.5	(a)	Discuss key features of Biological Neural Networks.	03
	(b)	How Activation Functions works, discuss in detail.	04
	(c)	Compare and contrast Perceptron NN and Multilayer Perceptron NN, highlighting key features and limitations.	07
OR			
Q.5	(a)	Discuss the key features of Artificial Neural Networks.	03
	(b)	How Semantic Analysis is helpful, explain in detail.	04
	(c)	Illustrate the Discourse and Pragmatic Processing with suitable diagram.	07
