

Enrollment No./Seat No.:

GUJARAT TECHNOLOGICAL UNIVERSITY
M.SC INTEGRATED - SEMESTER - VII EXAMINATION - WINTER 2025

Subject Code: 1370501

Date: 13-11-2025

Subject Name: Introduction to Artificial Intelligence and Data Science

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. Use of simple calculators and non-programmable scientific calculators are permitted.**

	Marks
Q.1 (a) Define Following: 1. Artificial intelligence 2. Data Science 3. BI	03
(b) Discuss the applications of AI.	04
(c) Explain the state space representation with suitable example.	07
Q.2 (a) Differentiate strong AI vs Weak AI.	03
(b) Explain backward reasoning with example.	04
(c) Define constraint satisfaction problem (CSP). Explain CSP with example.	07
OR	
(c) Discuss hill climbing algorithm. Also discuss the problems associated with hill climbing.	07
Q.3 (a) Translate following sentences into formulas in Predicate logic: 1. Cricket is a game. 2. Khokho is a game. 3. Rohan and Manan are students. 4. Rohan plays Cricket.	03
(b) Explain components of production system.	04
(c) Discuss A* algorithm with one example.	07
OR	
(a) Explain means-ends analysis in short.	03
(b) Consider the following facts: 1. All the dogs are animal. 2. Rambo is a dog. 3. All the animal will die. Using resolution prove the statement, "Rambo will die".	04

- (c) Discuss procedural versus declarative Knowledge with example. 07
- Q.4** (a) "Nowadays, Social media analytics is an important marketing channel for marketers." Discuss the validity of the statement. 03
- (b) Compare BFS vs DFS. 04
- (c) Explain descriptive and predictive analytics in detail . 07

OR

- (a) Explain Isa relationship with example. 03
- (b) Enlist and explain prescriptive analytics techniques. 04
- (c) Discuss the framework for data driven decision making 07
- Q.5** (a) Explain the issues in knowledge representation. 03
- (b) Write the challenges of data driven organizations. 04
- (c) Discuss the steps involved in data science pipeline. 07

OR

- (a) Enlist the characteristics of data scientist. 03
- (b) Write down the python code snippet to load data and train a model with suitable example. 04
- (c) Discuss the role of python in data science. 07
