

Seat No./Enrollment No.: _____

GUJARAT TECHNOLOGICAL UNIVERSITY
BACHELOR OF ENGINEERING – SEMESTER 2 – EXAMINATION – SUMMER 2026

Subject Code: BE02000041/BE02R00041

Date: 30/06/2026

Subject Name: Fundamental of AI

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.**

- Q.1** (a) What is Artificial Intelligence? **03**
(b) Explain the main characteristics of an intelligent agent. **04**
(c) Discuss the history and evolution of Artificial Intelligence. **07**
- Q.2** (a) What is knowledge representation in Artificial Intelligence? **03**
(b) What is Natural Language Processing (NLP)? Mention any two applications. **04**
(c) Compare Artificial Narrow Intelligence (ANI), Artificial General Intelligence (AGI), and Artificial Super Intelligence (ASI) with suitable examples. **07**
- OR**
- Q.2** (c) Explain the concepts of production systems, agents, and environments in AI with the help of suitable examples. **07**
- Q.3** (a) What is an expert system? Give one real-life example. **03**
(b) Explain concept of Rationality. **04**
(c) Explain in detail how expert systems are designed. Discuss their advantages and limitations with examples. **07**
- OR**
- Q.3** (a) Define pattern recognition with one simple example. **03**
(b) Explain the importance of knowledge representation in AI. **04**
(c) Explain the concept and working of Deep Learning with suitable examples. **07**
- Q.4** (a) Discuss nature of environments in AI. **03**
(b) What is the difference between supervised and unsupervised learning? **04**
(c) Discuss the different types of Deep Learning models such as CNN, RNN, and GAN, and mention where they are used. **07**
- OR**
- Q.4** (a) What is a Large Language Model (LLM)? **03**
(b) Describe the basic idea behind linear regression. **04**
(c) Explain the difference between Machine Learning and Deep Learning. **07**
- Q.5** (a) Mention any two real-life applications of Deep Learning. **03**
(b) What is the main purpose of using Support Vector Machines (SVM) in machine learning? **04**
(c) Discuss the different forms of learning in Machine Learning and discuss any one training algorithm used in each type. **07**
- OR**
- Q.5** (a) Give one real-life example of reinforcement learning. **03**

- (b)** Describe the basic structure of a Neural Network.
- (c)** Discuss Current Issues & Future Challenges of AI.

04

07
