

GUJARAT TECHNOLOGICAL UNIVERSITY**BE - SEMESTER-VI EXAMINATION – SUMMER 2025****Subject Code: 3161926****Date: 09-06-2025****Subject Name: Industry 4.0****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) How does Industry 4.0 differ from previous industrial revolutions?	03
	(b) Discuss the benefits of Industry 4.0	04
	(c) How is India handling the need for skill development to meet the demands of Industry 4.0 technologies?	07
Q.2	(a) What are the key components that constitute the core structure of Industry 4.0?	03
	(b) What metrics and indicators are employed to monitor the progress and effectiveness of the technology roadmap in advancing Industry 4.0?	04
	(c) What are the fundamental components and elements included in the proposed framework for the technology roadmap of Industry 4.0?	07
	OR	
	(c) Elaborate technologies behind the industrial revolution 4.0	07
Q.3	(a) Write a short note on Internet of robotic things	03
	(b) What do you understand by smart factories and how do you propose the application of Artificial Intelligence and robotics will be beneficial in its implementation?	04
	(c) Explain in detail the Industrial Applications of Augmented Reality (AR)	07
	OR	
Q.3	(a) Discuss about cloud robots	03
	(b) How does the integration of AR contribute to the overall goals and principles of Industry 4.0 in manufacturing and beyond?	04
	(c) Describe the essential hardware technologies that constitute an Augmented Reality system in an industrial setting	07
Q.4	(a) Which sectors in India have adopted Industry 4.0?	03
	(b) How does the Internet of Robotic Things (IoRT) transform the way robots operate in Industry 4.0 environments?	04
	(c) Provide examples of industries or companies successfully using AR for training purposes, and what outcomes have they observed	07
	OR	
Q.4	(a) What is IoRT? Enlist various components of IoRT	03
	(b) Write difference between Augmented Reality (AR) and Virtual Reality (VR)	04
	(c) Explain how Augmented Reality is employed in quality control processes and maintenance activities in Industry 4.0	07
Q.5	(a) How does Industry 4.0 affect workers?	03
	(b) Write a short note on Artificial intelligence with reference to Industry 4.0	04

- (c) State methods for protection of corporate data in Industry 4.0 **07**
- OR**
- Q.5** (a) Explore the concept of cloud robotics and its role in the Industry 4.0 landscape **03**
- (b) How are robots utilized in manufacturing within the Industry 4.0 paradigm? Discuss specific applications and the impact on production efficiency and quality **04**
- (c) Provide examples of industries where robotic applications in maintenance and assembly have demonstrated significant improvements **07**
