Seat No.: _____   Enrolment No._____

GUJARAT TECHNOLOGICAL UNIVERSITY
BE - SEMESTER–VI (NEW) EXAMINATION – WINTER 2023

Subject Code:3161926   **Date:22-12-2023**
Subject Name:Industry 4.0
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)	Define Industry 4.0? and what are the important tools that help to implement Industry 4.0 in an Industry?	03
	(b)	Explain the proposed framework for Industry 4.0?	04
	(c)	What are the three core and nine supportive technologies help to implementation of Industry 4.0?	07
Q.2	(a)	Write three sector and brief how they adopt Industry 4.0?	03
	(b)	Draw and explain a hypothetical model for revolution in Industry 4.0?	04
	(c)	How is India Preparing for Industry 4.0? Draw a lifecycle of Industry 4.0 and explain each topic in brief?	07
		OR	
	(c)	Explain the origin of Industry 4.0? also write advantages of industry 4.0 in manufacturing and Production system?	07
Q.3	(a)	Write a difference between IOT and IIOT	03
	(b)	Write a shot note on Cloud Robotics and Cognitive Architecture for cyber - Physical Robotics	04
	(c)	What is a Road map? How does this roadmap benefit for implementation of Industry 4.0?	07
		OR	
Q.3	(a)	Explain the principle of working of light sensor.	03
	(b)	Define sensor? and explain in details about temperature sensor and contact sensor?	04
	(c)	What is a robot? draw a neat sketch with proper name and explain the function of each component?	07
Q.4	(a)	How AI fulfil the requirement of Real-time analysis	03
	(b)	What is the meaning of Augmented Reality? Explain the main parts of the AR.	04
	(c)	Explain how industrial robots are used in Manufacturing, Maintenance and Assembling?	07
		OR	
Q.4	(a)	How state of art used for successful system adaptation to Industry 4.0?	03
	(b)	Write a brief note on Augmented Reality Hardware and Augmented Reality Software Technology	04
	(c)	How can you justify Industry 4.0 and robotic technology help to prevent the spread of COVID 19 in India?	07

Q.5 **(a)** What are the obstacles for the implementation of Industry 4.0? **03**

(b) What are the steps that make India, a leading manufacturing hub? **04**

(c) Why legal framework required and how this will help for implementing Industry 4.0? **07**

OR

Q.5 **(a)** Write a short note on five layers of Internet of robotic things. **03**

(b) How digital strategy and data connectivity affect Industry 4.0? **04**

(c) Write a short note on Seven Types of Robotics Software that are used for Robot Programming **07**

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