GUJARAT TECHNOLOGICAL UNIVERSITY
BE - SEMESTER– VI (NEW) EXAMINATION – WINTER 2021

Subject Code:3161926   **Date:07/12/2021**
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 the following terms: (1) Industry 4.0, (2) Additive Manufacturing, (3) Internet of Things	**03**
	(b)	Write briefly about Industries 4.0 Roadmap Process	**04**
	(c)	How is India preparing for Industry 4.0	**07**
Q.2	**(a)**	Define the following terms: (1) Cloud Robotics, (2) Augmented Reality, (3) Cyber Physical Systems	**03**
	(b)	List application of Industry 4.0 in Maintenance and assembly.	**04**
	(c)	Which is the proposed Framework for Technology Roadmap about Industry 4.0	**07**
		OR	
	(c)	Write a short note on Cognitive Architecture for Cyber-Physical Robotics.	**07**
Q.3	**(a)**	Enlist Industrial Robotic Applications in Manufacturing	**03**
	(b)	What are Cyber-Physical Systems? Elaborate.	**04**
	(c)	Describe New Product and Process Development Phase in Industry 4.0.	**07**
		OR	
Q.3	**(a)**	What is comprehensive broadband infra- structure?	**03**
	(b)	Describe virtualization and decentralization with respect to Industry 4.0	**04**
	(c)	Write a short note on Artificial Intelligence with reference to Industry 4.0	**07**
Q.4	**(a)**	Enlist industrial application of AR	**03**
	(b)	Explain financing condition for Industry 4.0 in India	**04**
	(c)	What are Advanced Sensor Technologies in Robots? Enlist and explain.	**07**
		OR	
Q.4	**(a)**	Which are the design principles of Industry 4.0	**03**
	(b)	Write a short note on smart factories.	**04**
	(c)	Explain AR Hardware and Software Technology.	**07**
Q.5	**(a)**	State methods for protection of corporate data	**03**
	(b)	Write a short note on Internet of Robotic Things	**04**
	(c)	Write difference between AR, VR & MR	**07**

OR

Q.5 **(a)** What is the availability of skilled workers for Industry 4.0   **03**
(b) What is big data? Write applications of Big data.   **04**
(c) Explain Industry 4.0 Services.   **07**

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GUJARAT TECHNOLOGICAL UNIVERSITY
BE - SEMESTER–VI (NEW) EXAMINATION – SUMMER 2022

Subject Code:3161926   **Date:21/06/2022**
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)**	What is cyber physical system?	**03**
	(b)	Which industry branches are suitable for industry 4.0 development?	**04**
	(c)	How is India preparing for Industry 4.0?	**07**
Q.2	**(a)**	Enlist the key benefits of technology road mapping for industry 4.0.	**03**
	(b)	What do you mean by Industry 4.0 and how it is associated with IoT?	**04**
	(c)	Explain Proposed Framework for Industry 4.0.	**07**
		OR	
	(c)	Elaborate Technologies behind Industrial revolution 4.0.	**07**
Q.3	**(a)**	Why should you implement industry 4.0 solutions?	**03**
	(b)	List down all industrial revolutions. Define Industry 4.0 and give reasons for its implementation.	**04**
	(c)	Explain six design principles for Industry 4.0.	**07**
		OR	
Q.3	**(a)**	How much does it cost to implement an industry 4.0 solution?	**03**
	(b)	Enlist the various challenges for Industry 4.0 transformation.	**04**
	(c)	Explain in detail the Industrial Applications of AR.	**07**
Q.4	**(a)**	What are the risks of an industry 4.0 solution?	**03**
	(b)	Explain the concept of Augmented Reality.	**04**
	(c)	Explain the Industrial Robotics applications in context of 1) Manufacturing 2) Maintenance 3) Assembly 4) Training	**07**
		OR	
Q.4	**(a)**	What is IoRT? Enlist the various components of IoRT.	**03**
	(b)	Write a short note on advances in sensor technology in a robotics in context of Industry 4.0.	**04**
	(c)	Explain IoRT classification according to application areas.	**07**
Q.5	**(a)**	What is 5G and how will it accelerate industry 4.0?	**03**
	(b)	What are the various AR Hardware and software technology?	**04**
	(c)	Explain the legal framework conditions for the industry 4.0.	**07**
		OR	
Q.5	**(a)**	How does Industry 4.0 affect workers?	**03**
	(b)	What is Industry 4.0 Cyber Security?	**04**
	(c)	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?	**07**

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