

GUJARAT TECHNOLOGICAL UNIVERSITY

BE- SEMESTER-VI EXAMINATION – WINTER 2025

Subject Code:3161926

Date:04-12-2025

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

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|------------|--|-----------|
| Q.1 | (a) What is Industry 4.0? | 03 |
| | (b) Explain in brief the history of industrial revolution. | 04 |
| | (c) Briefly write how India is preparing for Industry 4.0. | 07 |
| Q.2 | (a) Enlist the key components of Industry 4.0. | 03 |
| | (b) Write properties of Embedded systems. | 04 |
| | (c) Enlist seven design principles considered for modern manufacturing industries and explain any two. | 07 |
| | OR | |
| | (c) Write short note on: Cloud technologies for Industry 4.0 | 07 |
| Q.3 | (a) What is adaptive robotics? | 03 |
| | (b) Write short note on: Additive manufacturing for Industry 4.0 | 04 |
| | (c) Briefly explain the key benefits of technology road mapping of Industry 4.0. | 07 |
| | OR | |
| Q.3 | (a) What is technology road mapping? | 03 |
| | (b) Discuss briefly the challenges for Industry 4.0 transformation. | 04 |
| | (c) Explain the phases of technology roadmap for Industry 4.0. | 07 |
| Q.4 | (a) What is the function of actuator used for robots? | 03 |
| | (b) Explain the working of magnetic positioning sensors used for adaptive robotics. | 04 |
| | (c) What is a COBOT? Explain working of a COBOT with a neat sketch. | 07 |
| | OR | |
| Q.4 | (a) Write the difference between Augmented Reality and Virtual Reality. | 03 |
| | (b) Discuss the basic features of Augmented Reality. | 04 |
| | (c) Write short note on Internet of Robotics things & cloud robotics. | 07 |
| Q.5 | (a) Explain the importance of data security in digital framework. | 03 |
| | (b) Explain the role of AR in product design and development. | 04 |
| | (c) Write short note on: Obstacles in implementation of industry 4.0 | 07 |
| | OR | |
| Q.5 | (a) What is poor data in digital framework? | 03 |
| | (b) Discuss the industrial application of augmented reality. | 04 |
| | (c) Explain the importance of Cyber security in tackling the obstacles in Industry 4.0 with suitable examples. | 07 |
