

GUJARAT TECHNOLOGICAL UNIVERSITY**BE - SEMESTER-VI EXAMINATION – SUMMER 2025****Subject Code:3161716****Date:28-05-2025****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

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|------------|--|-----------|
| Q.1 | (a) Give the names of Industry 4.0 revolution given by following countries
1) Germany 2) France and 3) South Korea | 03 |
| | (b) What are the differences between digitization and digitalization?
Discuss its role in digital transformation. | 04 |
| | (c) Give the names of various drivers of industry 1.0 to Industry 4.0. Describe each Ind revolution with its respective challenges | 07 |
| Q.2 | (a) Justify the role of Digital transformation to enhance network economy of the country.. | 03 |
| | (b) Brief the major differences between IoT and IIoT concepts in context to Industry 4.0 | 04 |
| | (c) Draw neat functional diagram of Internet of Things (IoT) and describe each part of it in detail. | 07 |
| | OR | |
| | (c) Describe the framework and necessary functions to be required to implement Smart Cities concept over traditional cities | 07 |
| Q.3 | (a) Discuss the engineering benefits offered by Smart manufacturing over conventional approach. | 03 |
| | (b) Compare operation of today's factory with Smart factory | 04 |
| | (c) Why some devices are called as Smart Device? Draw and describe the functional diagram of Smart Device. | 07 |
| | OR | |
| Q.3 | (a) What are the scope of Ind 4.0 revolution. Briefly describe it | 03 |
| | (b) Differentiate HTTP versus MQTT messaging protocols. | 04 |
| | (c) What are three C of Industry 4.0? Explain how will IEEE 802.15.4 standard justified one of "C" of Ind 4.0? | 07 |
| Q.4 | (a) What are Autonomous robots? How will it supporting industrial automation globally. | 03 |
| | (b) Describe the operational methodologies of Smart Logistic in context to Ind 4.0. | 04 |
| | (c) What is CPS? Describe the architecture of CPS for Environmental pollution monitoring system. | 07 |
| | OR | |
| Q.4 | (a) How will Augmented Reality (AR) is considered as one of the enablers of Ind 4.0? Briefly discuss it. | 03 |
| | (b) Briefly discuss the functional differences of Remote controlled robots and Cobots | 04 |
| | (c) What the main objective of Predictive analysis? Explain why Big data play vital role in predictive analysis? | 07 |

Q.5	(a)	What do you know about Mobile computing? Brief it working as one of the enablers of Ind 4.0.	03
	(b)	How does the data, information and knowledge are the key parameters of future of industry 4.0? Explain it	04
	(c)	What is Cloud computing? Describe how it helpful to Industry 4.0 implementation worldwide.	07
OR			
Q.5	(a)	What is Data analytics? Brie its role in Industry4.0.	03
	(b)	Briefly describe the contributions of QR codes and barcode-type product identification methods as one of the smarter approach of Industry 4.0.	04
	(c)	What are the treats of IoT enabled system? How do Cyber security helpful to minim? Why it is very important enabler of Industry 4.0? Discuss with suitable example.	07

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