



**Qn. Set Code-2**

Semester: 4<sup>th</sup>

Programme: B.Tech

Branch: IT, CSSE, CE, EE, E&TC, E&EE,

E&CSc, ME, AE, MH, AS

# **SPRING END SEMESTER EXAMINATION-2024**

**4<sup>th</sup> Semester B.Tech**

## **INDUSTRY 4.0 TECHNOLOGIES**

**EX20001**

**(For 2022 & Previous Admitted Batches)**

Time: 2 Hours 30 Minutes

Full Marks: 50

*Answer any FIVE questions.*

*Question paper consists of three SECTIONS i.e. A, B and C.*

*Attempt minimum one question each from each Section.*

*The figures in the margin indicate full marks.*

*All parts of a question should be answered at one place only.*

### **SECTION-A**

1. (a) Is Industry 4.0 going to be the smart factory and the future of automation? Which design concepts enable us to look into the possibility of an Industry 4.0 technology transition? [5]
- (b) State the basic difference between Machine Learning and Deep learning. How machine learning (ML) field has deeply impacted the manufacturing industry in the context of the Industry 4.0 paradigm [5]
2. (a) Describe blockchain technology and its fundamental principles of operation. [5]
- (b) What are the key challenges in integrating cyber physics with the physical world? How can cyber physics enhance the field of robotics? [5]

## SECTION-B

3. (a) What are the deployment models of cloud computing model? How does a hybrid cloud work and benefit the businesses? [5]
- (b) State the concept of AR and VR. What are the Obstacles that developers face when producing AR/VR Content, and How can these be overcome? [5]
4. (a) Explain Artificial intelligence, Machine Learning, and Deep Learning differ from each other with respect to their application. [5]
- (b) Differentiate between conventional manufacturing and additive manufacturing. Explain briefly about the role of additive technology in Architectural Designs Firm. [5]
5. (a) Compare the differences between of IOT, IIOT and M2M. Explain about M2M *architecture*. [5]
- (b) What are the key privacy and security considerations when collecting and managing patient data with IoT devices in healthcare settings? [5]

## SECTION-C

6. (a) What is a Value Chain analysis? Explain how growth in agriculture industry follow the concept of value chain to have the profit. [5]
- (b) Justify is there any benefit for supply chain management combine with a Digital Twin. Explain the major areas where industries apply the concept of digital twins. [5]
7. (a) Explain in brief the top challenges that face factories when they adopt industry 4.0 technology? State examples of some Indian companies that have successfully [5]

implemented "industry 4.0" in their organization/enterprise?

- (b) How do you create the conceptual model for Industry 4.0 that addresses the challenges of the implementation framework, the opportunity for the future, and the financial impact of a country? [5]

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