

Total No. of Questions : 8]

SEAT No. :

**PE2436**

[Total No. of Pages : 2

**[6584]-386**

**B.E. (Artificial Intelligence and Data Science)**

**INDUSTRIAL INTERNET OF THINGS**

**(2019 Pattern) (Semester - VII) (417523B) (Elective - III)**

*Time : 2½ Hours]*

*[Max. Marks : 70*

*Instructions to the candidates:*

- 1) Solve Q.1 or Q.2, Q.3 or Q.4, Q.5 or Q.6, Q.7 or Q.8.
- 2) Neat diagrams must be drawn wherever necessary.
- 3) Figures to the right indicate full marks.
- 4) Assume suitable data if necessary.

**Q1) a)** Describe the functions of the following IIoT components: [6]

- i) Gateways
- ii) Routers
- iii) Modem

b) Explain the Business Model Architecture of industrial IoT. [6]

c) Explain the difference between edge computing and cloud computing in industrial IoT. [6]

OR

**Q2) a)** What is Cloud broker and why is it used in IIoT? [6]

b) Explain the Industrial Internet Architecture Framework (IIAF). [6]

c) Explain the Industrial IoT- Layers. [6]

**Q3) a)** Compare and contrast the different features of leading IIoT cloud platforms(e.g. Predix, PTC ThingWorx, Microsoft Azure). [6]

b) What is the role of data analytics in Industrial IoT? Explain Any one Example. [6]

c) What is need of Digital Twin for industrial IoT? Explain Elements of Digital Twin in Industrial IoT. [6]

OR

*P.T.O.*

- Q4)** a) Explain the concept of Cloud of Things (CoT) and its significance in the context of Industrial IoT. [6]  
b) Explain the importance of data visualization techniques in presenting complex Industrial IoT data. [6]  
c) Discuss the challenges and benefits of using an IIoT cloud platform to Implement a digital twin. [6]

- Q5)** a) What are the key challenges and security considerations when implementing the industrial IoT in industrial environments? [6]  
b) Explain the industrial IoT threat analysis in smart manufacturing plant. [6]  
c) Explain the Network security techniques in industrial IoT. [5]

OR

- Q6)** a) Explain the Conventional web technology and relationship with industrial IoT. [6]  
b) What is importance of access control in industrial IoT? Explain the methodologies for access control. [6]  
c) Explain Management aspects of cyber security in industrial IoT. [5]

- Q7)** a) Explain the concept of Smart Irrigation and how they differ from traditional manufacturing facilities. [6]  
b) Define the terms : [6]  
i) smart metering  
ii) smart robotics  
iii) smart logistics  
c) Describe the concept of Industry 5.0 (Society 5.0). How does it build upon Industry 4.0? [5]

OR

- Q8)** a) Explain the health care application in industrial IoT. [6]  
b) Assess the challenges and benefits of implementing cyber Manufacturing systems in different industries. [6]  
c) What are Key characteristics of industry 4.0? [5]

