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Printed Page:-4 **Subject Code:- AME0503**

Roll. No:

NOIDA INSTITUTE OF ENGINEERING AND TECHNOLOGY, GREATER NOIDA
(An Autonomous Institute Affiliated to AKTU, Lucknow)
B.Tech
SEM: V - THEORY EXAMINATION (2025 - 2026)
Subject: Applied Industrial IOT

Time: 3 Hours **Max. Marks: 100**

General Instructions:

IMP: *Verify that you have received the question paper with the correct course, code, branch etc.*

1. *This Question paper comprises of* ***three Sections -A, B, & C.*** *It consists of Multiple Choice Questions (MCQ's) & Subjective type questions.*

2. *Maximum marks for each question are indicated on right -hand side of each question.*

3. *Illustrate your answers with neat sketches wherever necessary.*

4. *Assume suitable data if necessary.*

5. *Preferably, write the answers in sequential order.*

6. *No sheet should be left blank. Any written material after a blank sheet will not be evaluated/checked.*

SECTION-A 20

1. Attempt all parts:-

1-a. _____ provides a middleware and application container for IoT gateway. (CO1, K1) 1

(a) Eclipse Kura
(b) Red Hat
(c) Intercloud
(d) Bot 2 Bot

1-b. Smart meter is an example of _____ (CO1, K1) 1

(a) Consumer IoT devices
(b) Enterprise IoT devices
(c) Industrial IoT devices
(d) None of these

1-c. The most familiar single sensor used for Image Acquisition is _____ (CO2, K1) 1

(a) Microdensitometer
(b) Photodiode
(c) CMOS
(d) None of the mentioned

1-d. Which sensor is used for the measurement of velocity microstructure? (CO2, K1) 1

(a) Shear
(b) Photo
(c) LDR
(d) None of these

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1-e. Which of the following is the main benefits of edge computing? (CO3, K1) 1

(a) Autonomy
(b) Data sovereignty
(c) Edge security
(d) All of these

1-f. Gateway provides the connection between _____ (CO3, K1) 1

(a) Cloud and Controller
(b) Network and Cloud
(c) Network and Controller
(d) Controller and Device

1-g. The framework of 3 tier architecture is categorized into _____ layers (CO4, K1) 1

(a) one
(b) two
(c) three
(d) four

1-h. A layer, which is the binary data protocol layer? (CO4, K1) 1

(a) Stub layer
(b) Skeleton layer
(c) Remote layer
(d) Transport protocol layer

1-i. Which services offer a set of tools and services designed to ensure the security of regulated cloud data? (CO5, K1) 1

(a) DLP
(b) IAM
(c) SIEM
(d) None of these

1-j. Which can help identify and inventory IoT devices connecting to a network. (CO5, K1) 1

(a) Network access control
(b) Protocols
(c) Both 1 and 2
(d) None of these

2. Attempt all parts:-

2.a. What is the name of the upper and lowest layer of layered architecture of IIoT ? (CO1, K2) 2

2.b. Write the difference between Thermistor and Thermostat. (CO2, K2) 2

2.c. Define the accuracy of sensor. (CO3, K2) 2

2.d. What is the role of presentation layer in one – tier server architecture. (CO4, K2) 2

2.e. What is Network Access Control? (CO5, K2) 2

SECTION-B 30

3. Attempt all parts:-

3.a. Answer any one of the following:-

3.a.(i)	Explain the concept and various key challenges facing IoT systems. (CO1, K3)	6
3.a.(ii)	Explain the working of Data Management layer in an IIoT architecture.(CO1, K3)	6

3.b. Answer any one of the following:-

3.b.(i)	Write the differences between sensor and transducer. (CO2, K3)	6
3.b.(ii)	Discuss the differences between measurement and inspection with suitable example. (CO2, K3)	6

3.c. Answer any one of the following:-

3.c.(i)	Discuss the differences between unidirectional and bidirectional gateway. (CO3, K3)	6
3.c.(ii)	Explain the working of gateway. (CO3, K3)	6

3.d. Answer any one of the following:-

3.d.(i)	Discuss the differences between magnetic and optical storage with the help of suitable examples. (CO4, K3)	6
3.d.(ii)	Discuss the differences between data architecture and big data architecture. (CO4, K3)	6

3.e. Answer any one of the following:-

3.e.(i)	Explain the process of Identity and Access management (IAM). (CO5, K3)	6
3.e.(ii)	Explain IIoT Platform with suitable example. (CO5, K3)	6

SECTION-C 50

4. Answer any one of the following:-

4-a.	Discuss the differences between consumer, enterprise and industrial IoT devices. (CO1, K3)	10
4-b.	Describe the advantages and disadvantages of IoT along with suitable examples. (CO1, K3)	10

5. Answer any one of the following:-

5-a.	Explain the various steps for processing of measurement in an industrial system.(CO2, K3)	10
5-b.	Elaborate the different uses of various sensor technologies in industrial applications. (CO2, K3)	10

6. Answer any one of the following:-

6-a.	Discuss edge technology and describe two real life applications of edge technology. (CO3, K3)	10
6-b.	Briefly explain the different types of wired or guided transmission media. (CO3, K3)	10

7. Answer any one of the following:-

7-a.	Explain the process of batch processing with the help of a neat diagram. (CO4, K3)	10
7-b.	Describe the various types of data storage technologies with suitable example. (CO4, K3)	10

8. Answer any one of the following:-

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8-a.	Describe the various features of Future Ready Industrial IoT services for industries. (CO5, K3)	10
8-b.	Discuss the various issues and challenges of IoT security in current scenario. (CO5, K3)	10