Printed Page:- **Subject Code**:- **AEC0403**

Roll. No:

NOIDA INSTITUTE OF ENGINEERING AND TECHNOLOGY, GREATER NOIDA

(An Autonomous Institute Affiliated to AKTU, Lucknow)

B.Tech

SEM: IV - CARRY OVER THEORY EXAMINATION - APRIL 2023

Subject: Internet of Things

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. Expand the full form of IoT? (CO1) 1

(a) Internet of Technology

(b) Incorporate of Things

(c) Internet of Things

(d) Incorporate of Technology

1-b. Which of the following is not a fundamental component of an IoT system? (CO1) 1

(a) Sensors

(b) Connectivity and data processing

(c) User interface

(d) Transformer

1-c. The SOA architecture is divided into how many layers? (CO2) 1

(a) 5 layers

(b) 6 layers

(c) 7 layers

(d) 2 layers

1-d. IoT gateway must provide (CO2) 1

(a) Simple and fast installation

(b) Security with hardware

(c) Data storage

(d) Protocol abstraction

1-e. Which of the following is not a sensor in IoT? (CO3) 1

(a) BMP280

(b) DHT11

(c) Photoresistor

(d) LED

1-f. Which programming language is used by Arduino IDE IoT software for writing codes? (CO3) 1

(a) Python

(b) Java

(c) C/C++

(d) JavaScript

1-g. Full form of MQTT is _____. (CO4) 1

(a) Message Queuing Telemetry Transport

(b) Message Queuing Telegram Transport

(c) Message Queue Telegram Transport

(d) Message Queue Telemetry Transport

1-h. Which of the following topology is used for ZigBee Smart Energy? (CO4) 1

(a) Bus Topology

(b) Ring Topology

(c) Star Topology

(d) Any Topology

1-i. Name the process or action of verifying the identity of a user or process. (CO5) 1

(a) Auditing

(b) Authorisation

(c) Authentication

(d) Accounting

1-j. IIoT stands for _____. (CO5) 1

(a) Industrial Internet of Things

(b) Internet Internet of Things

(c) Intelligence Internet of Things

(d) Internal Internet of Things

2. Attempt all parts:-

2.a. List the sensors used for fabricating any smart fan. (CO1) 2

2.b. Define IoT architecture with diagram. (CO2) 2

2.c. Which microcontroller is used in Arduino Uno? (CO3) 2

2.d. Explain any one IoT Communication Model. (CO4) 2

2.e. Give two differences between Symmetric and Asymmetric encryption. (CO5) 2

SECTION B **30**

3. Answer any <u>five</u> of the following:-

3-a. Differentiate between sensors and actuators with examples. (CO1) 6

3-b. Explain TCP/IP layer model with diagram. (CO1) 6

3-c. Explain the differences between public, private and community cloud deployment models. (CO2) 6

3-d. Draw the register set of an ARM Cortex M4 processor and explain the functions of these registers. (CO2) 6

3.e. With the help of suitable examples explain the differences between analog and digital sensor. (CO3) 6

3.f. Explain Z-wave communication technology and write down its various features. (CO4) 6

3.g. Explain edge-to-cloud architecture in detail. (CO5) 6

SECTION C **50**

4. Answer any <u>one</u> of the following:-

4-a. Explain link layer protocols with examples. (CO1) 10

4-b. Explain about descriptive and predictive big data analytics with a suitable example. (CO1) 10

5. Answer any <u>one</u> of the following:-

5-a. Illustrate cloud computing. Explain the various cloud deployment models. (CO2) 10

5-b. Discuss the role of gateways in fog architectures for IoT. (CO2) 10

6. Answer any one of the following:-

6-a.	With the help of neat diagram explain the working of Arduino Uno. (CO3)	10
6-b.	Describe the operating principle of successive approximation type ADC. What are its advantages and disadvantages? (CO3)	10

7. Answer any one of the following:-

7-a.	Explain the various IoT Communication Models with their advantages. (CO4)	10
7-b.	Explain Push-Pull Communication Model with its advantages and disadvantages. (CO4)	10

8. Answer any one of the following:-

8-a.	Illustrate the role of Platform Security Architecture in IoT and its different phases. (CO5)	10
8-b.	Mention future IoT trends with application and examples. (CO5)	10