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.   The main benefits of IoT are (CO1)   1

            (a) Efficient resource utilization

            (b) Minimizing Human effort

            (c) Saves time

            (d) All of these

1-b.   _____ are the devices that are able to emit, accept and process data over the network.   1
            (CO1)

            (a) Sensors

            (b) Gateways

            (c) Edge IT

            (d) Data Acquisition

1-c.   In _____ measurement methods, the unknown quantity (measurand) is measured   1
            directly instead of comparing it with a standard (CO2)

            (a) Direct

(b) Indirect

(c) Both a and b

(d) None of the above

1-d.   Barometer is which type of sensor_____ (CO2)   1

(a) Pressure sensor

(b) Touch sensor

(c) Temperature sensor

(d) Humidity sensor

1-e.   Which acts as a 'gate' between two networks and enables traffic to flow (in and out) of the   1
         network (CO3)

(a) sensor

(b) gateway

(c) processor

(d) None of these

1-f.   Which of the following protocol is used to link all the devices in the IoT? (CO3)   1

(a) HTTP

(b) UDP

(c) Network

(d) TCP/IP

1-g.   The process of discovering, analyzing, representing, and communicating data requirements   1
         in a precise form called (CO4)

(a) data architecture

(b) data model

(c) orchestration

(d) None of these

1-h.   HDD stands for (CO4)   1

(a) High disk drive

(b) Hard Digital disk

(c) High digital drive

(d) Hard disk drive

1-i.   Which of the following is threat to IoT Device (CO5)   1

(a) People

(b) Natural Disaster

(c) Spoofing

(d) All of these

1-j.   The process of identifying assets and threats in an organisation is known as (CO5)   1

(a) Threat Modeling

(b) Security Auditing

(c) Security Planning

(d) Firewalling

2. Attempt all parts:-

2.a.   What is Cloud Computing? (CO1)   2

2.b.   What is RTD sensor? (CO2)   2

2.c.   What do you mean by VoiP Trunk gateway? (CO3)   2

2.d.   What do you mean by data streaming? (CO4)   2

2.e.   Define segmentation. (CO5)   2

<div align="center">SECTION B   30</div>

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

3-a.   Differentiate between Information and Operational technology. (CO1)   6

3-b.   Explain the concept of IoT. What are the various key challenges facing IoT systems? (CO1)   6

3-c.   Write Short Notes on: 6
(a) Accuracy
(b) Precision
(c) Sensitivity (CO2)

3-d.   Discuss the differences between direct measurement and indirect measurement. (CO2)   6

3.e.   Discuss the differences between unidirectional and bidirectional gateway. (CO3)   6

3.f.   Discuss the differences between CD, DVD and blue ray disc. (CO4)   6

3.g.   What do you mean by IIoT Platform? Explain with a suitable example. (CO5)   6

<div align="center">SECTION C   50</div>

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

4-a.   With the help of neat sketches explain the role and importance of each layer of an IIoT   10
          layered architecture. (CO1)

4-b.   With the help of neat sketches explain the role and importance of each component of an IIoT   10

architecture. (CO1)

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

| 5 | Write Short Notes on:
(a) WAN Protocols
(b) LAN Protocols (CO2) | 10 |

| 5 | With the help of neat diagram discuss the construction, working principle and applications of thermocouple. (CO2) | 10 |

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

| 6 | Describe all the components of IoT Video Analytics used in live process with the help of a diagram. (CO3) | 10 |

| 6 | Define IoT Gateway. With the help of suitable examples discuss the various features associated with gateway. (CO3) | 10 |

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

| 7-a. | With the help of suitable examples describe the various kinds of storage technologies. (CO4) | 10 |

| 7-b. | What is the basic concept of server architecture? Explain the various types of server architecture. (CO4) | 10 |

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

| 8-a. | Describe the various challenges of security of an IIoT system. (CO5) | 10 |

| 8-b. | What do you mean by threat modelling? Explain the various features of threat modelling. (CO5) | 10 |