Question Bank

Module-1

1. What is IOT? Explain evolutionary phases of internet
2. Explain access network sublayer with a neat diagram
3. What are the elements of one M2M IoT architecture?Explain
4. Describe IoT World Forum(IoTWF)
5. Compare and contrast IT and OT
6. What is IOT?Explain in detail on genesis of IoT
7. What does IoT and Digitization mean? Elaborate on this concept.
8. Write a short notes on "Iot impact in real world"
9. Discuss IoT challenges
10. With a neat diagram explain architecture of IoT
11. Explain core IoT functional stack .
12. Explain IoT data management and compute stack with fog computing
13.

Module-2

1. With a neat diagram explain how actuators and sensors interact with physical world. Classify actuators based on energy type
2. List out the limitations of the smart objects in WSN and explain the data aggregation in WSN with a neat diagram
3. What is Zigbee? Explain 802.15.4 physical layer, MAC layer and security
4. Explain LoRa WAN standard and alliance MAC layer and security.
5. List and explain different types of sensors
6. Elaborate on small physical objects and small virtual objects
7. Explain "IoT access Technologies"
8. Briefly explain protocol stack utilization IEEE 802.15.4
9. What is SANET? Explain some advantages and disadvantages that a wireless based solution offers.

Module-3

1. Explain working of IP as the IOT network layer
2. Write a note on business case for IP
3. Discuss need for optimization
4. Discuss application protocols for IOT
5. Discuss various methods used in IOT application transport.
6. With a neat diagram explain 6LoWPAN protocol header compression and fragmentation
7. List and explain the key advantages of internet protocol
8. Explain RPL encryption and authentication on constraint node

9. Explain tunneling legacy SCADA over IP networks and SCADA protocol translation with a neat diagram
10. Describe MQTT framework and message format in detail.

Module-4

1. What do you mean by data and analytics for IOT? Explain
2. Discuss Bigdata analytics tools and technology
3. With case study relate the concept of securing IOT
4. Explain in detail how IT and OT security practice system vary in real time
5. Discuss OCTAVE and FAIR formal risk analysis
6. Explain the elements of Hadoop with a neat diagram
7. Explain neural network in machine learning with a detailed example
8. Describe the components of FNF
9. Explain Formal Risk analysis structures
10. Explain the Purdue model for control hierarchy and OT network characteristics.

Module-5

1. Give a brief note on Arduino UNO
2. With a neat diagram explain Raspberry Pi board
3. With a neat diagram explain wireless temperature monitoring system using RaspberryPi
4. Explain in detail smart city IOT architecture
5. With the case study explain smart and connected cities using RaspberryPi
6. Explain the following with respect to Arduino programming
   i) Structure
   ii) Functions
   iii) Variables
   iv) Flow control statements
   v) Data type
   vi) Constants
7. Explain RaspberryPi learning board
8. Write a python program on RaspberryPi to blink an LED
9. Explain smart city security architecture
10. Write a short note on:
    i) IOT challenges
    ii) Backhaul Technologies