

Eighth Semester B.E. Degree Examination, June/July 2019
Internet of Things Technology

Time: 3 hrs.

Max. Marks: 80

Note: Answer FIVE full questions, choosing one full question from each module.

Module-1

- 1 a. What is IOT? Explain in detail on Genesis of IOT. (08 Marks)
b. What does IOT and digitalization mean? Elaborate on this concept. (04 Marks)
c. Write a short note on "IOT impact in Real World". (04 Marks)

OR

- 2 a. Discuss IOT challenges. (08 Marks)
b. With a neat diagram, explain architecture of IOT. (04 Marks)
c. Explain Core IOT functional stack. (04 Marks)

Module-2

- 3 a. List and explain different types of sensors. (08 Marks)
b. Elaborate on small physical objects and small virtual objects. (04 Marks)
c. Explain "IOT Access Technologies". (04 Marks)

OR

- 4 a. Briefly explain protocol stack utilization IEEE 802.15.4. (08 Marks)
b. What is SANET? Explain some advantages and disadvantages that a wireless based solution offers. (08 Marks)

Module-3

- 5 a. Explain working of IP as the IOT network layer. (08 Marks)
b. Write note on Business case for IP. (04 Marks)
c. Discuss need for optimization. (04 Marks)

OR

- 6 a. Describe application protocols for IOT. (08 Marks)
b. Discuss the various methods used in IOT application transport. (08 Marks)

Module-4

- 7 a. What do you mean by data and analytics for IOT? Explain. (04 Marks)
b. Discuss Bigdata analytics tools and technology. (04 Marks)
c. With a case study relate the concept of securing IOT. (08 Marks)

OR

- 8 a. Explain in detail how IT and OT security practices and systems vary in real time. (08 Marks)
b. Discuss OCTAVE and FAIR formal risk analysis. (08 Marks)

Module-5

- 9 a. Give a brief note on Arduino UNO. (04 Marks)
b. With a neat diagram, explain Raspberry Pi board. (04 Marks)
c. With a neat diagram, explain wireless temperature monitoring system using Raspberry Pi. (08 Marks)

OR

- 10 a. Explain in detail smart city IOT architecture. (08 Marks)
b. With the case study explain smart and connected cities using Raspberry Pi. (08 Marks)

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Module-5

- 9 a. Explain the following with respect to Arduino programming.
- i) Structure
 - ii) Functions
 - iii) Variables
 - iv) Flow control statements
 - v) Data type
 - vi) Constants.
- b. Explain Raspberry Pi learning board.

(08 Marks)
(08 Marks)

OR

- 10 a. Write a python program on Raspberry Pi to blink an LED. (06 Marks)
- b. Explain Smart city security architecture. (06 Marks)
- c. Write a short note on :
- i) IOT challenges
 - ii) Backhaul Technologies.

(04 Marks)

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OR

- 8 a. Explain in detail how IT and OT security practices and systems vary in real time. (08 Marks)
 b. Discuss OCTAVE and FAIR formal risk analysis. (08 Marks)

1 of 2

Important Note : 1. On completing your answers, compulsorily draw diagonal cross lines on the remaining blank pages.
 2. Any revealing of identification, appeal to evaluator and /or equations written eg. 42+8 = 50, will be treated as malpractice.

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CBCS SCHEME

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Eighth Semester B.E. Degree Examination, November 2020
Internet of Things

Time 3 hrs.

Max. Marks: 80

Note: Answer any FIVE full questions irrespective of modules.

Module-1

- 1 a. Define IoT. Explain the different evolutionary phases of internet. (06 Marks)
 b. Explain the concept of Intersection Movement Assist (IMA) with graphical representation. (05 Marks)
 c. What are the different challenges of IoT? (05 Marks)

- 2 a. Explain with diagram the one M2M IoT standardized architecture. (08 Marks)
 b. Explain IoT Data Management and compute stack. (08 Marks)

Module-2

- 3 a. Define sensors and actuators. Explain how they interact with the physical world. (05 Marks)
 b. Define smart objects. Explain its characteristics. (05 Marks)
 c. Explain briefly the Wireless Sensor Networks (WSN). (06 Marks)

- 4 a. What are Constrained Devices and constrained node networks? Classify them. (06 Marks)
 b. Explain Zigbee protocol stack using IEEE 802.15.4. (10 Marks)

Module-3

- 5 a. Explain in detail the 6LOWPAN. (10 Marks)
 b. Explain the different schedule management and packet forwarding models of 6TiSCH. (06 Marks)

- 6 a. Explain the raw socket tunneling of SCADA using different scenarios. (06 Marks)
 b. What is COAP? Draw COAP Message Format. Explain its fields. (06 Marks)
 c. Compare between COAP and MQTT. (04 Marks)

Module-4

- 7 a. Explain in detail the core functions of edge analytics with necessary diagrams. (08 Marks)
 b. Explain the different components of Flexible Net flow Architecture (FNF). (08 Marks)

- 8 a. Explain the different steps and phases of OCTAVE Allegro methodology. (08 Marks)
 b. Explain Secured Network Infrastructure by using process control hierarchy model. (08 Marks)

Module-5

- 9 a. Explain the different pins/parts of Arduino Uno Board. (08 Marks)
 b. Write a program to record the current room temperature using Raspberry pi. (08 Marks)

- 10 a. Explain the different layers of IoT Smart city layered architecture. (08 Marks)
 b. Explain Smart parking architecture with advantages and disadvantages. (08 Marks)

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