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15EC752

## Seventh Semester B.E. Degree Examination, June/July 2019 IOT and Wireless Sensor Networks

Time: 3 hrs.

Max. Marks: 80

**Note: Answer any FIVE full questions, choosing ONE full question from each module.**

### Module-1

- 1 a. What is Internet of Things (IOT)? Explain the roles of "Things" and 'Internet' in IOT. (04 Marks)
- b. What is Machine – to – Machine (M2M) communication? What are the differences between IOT and M2M communication? (04 Marks)
- c. Explain with a neat diagram the modified ISO model with protocols used in each layer for IOT/M2M systems. (08 Marks)

OR

- 2 a. Explain challenges in developing IOT applications. (04 Marks)
- b. Explain in detail the enabling technologies for Internet of Things (IOT). (04 Marks)
- c. Explain in detail the advantages and disadvantages of IOT. (08 Marks)

### Module-2

- 3 a. Write a note on importance of networking protocol 6 LOWPAN in IOT. (04 Marks)
- b. Explain in detail the Architecture of IOT with a neat diagram. (08 Marks)
- c. What is Industrial Internet of Things (IIOT) and how IIOT is different from IOT? (04 Marks)

OR

- 4 a. What is the role of cloud computing in IOT? (04 Marks)
- b. Explain in detail different cloud service models used in IOT. (08 Marks)
- c. How Internet addresses (IPV6) might affect the development and implementation of IOT? (04 Marks)

### Module-3

- 5 a. Explain in detail the vulnerabilities Internet of Things (IOT). (04 Marks)
- b. What is IOT Security Tomography? Explain in detail the layered attacker model. (06 Marks)
- c. Explain how threat analysis for a system is performed using Microsoft Threat Modeling Tool? (06 Marks)

OR

- 6 a. Write a short note on Arduino programming for IOT? (05 Marks)
- b. Explain with example MQTT protocol. (05 Marks)
- c. Why security is required in IOT? Explain in brief various security models in IOT. (06 Marks)

### Module-4

- 7 a. What is WSN? Explain in detail the architecture of WSN with a diagram. (08 Marks)
- b. Explain the different categories of sensors. (03 Marks)
- c. Explain in detail optimization goals and figures of merit in WSN. (05 Marks)

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.



- OR
- 8 a. Explain the concept of Gateway with different scenarios in WSN. (06 Marks)
  - b. Discuss about the structure and protocol sketch in OS. (04 Marks)
  - c. Explain challenges and characteristics requirements of WSN. (06 Marks)

Module-5

- 9 a. What is clustering? Explain in detail clustering principle in WSN. (06 Marks)
- b. Explain the important classes of MAC protocols in WSN. (06 Marks)
- c. Explain in brief wakeup Radio concept in WSN. (04 Marks)

OR

- 10 a. Explain in detail the LEACH Routing protocol in WSN. (08 Marks)
- b. Differentiate between contention based MAC protocol and schedule based MAC protocol. (04 Marks)
- c. Write short notes on Geographic Routing in WSN. (04 Marks)

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