

CBCS SCHEME

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15EC752

Seventh Semester B.E. Degree Examination, July/August 2021 IOT and Wireless Sensing Networks

Time: 3 hrs.

Max. Marks: 80

Note: Answer any FIVE full questions.

- 1 a. Define IOT and discuss briefly IBM IOT conceptual frame work. (08 Marks)
b. Discuss IETF six layer modified OSI model for IOT/M2M systems. (08 Marks)
- 2 a. Discuss briefly the Technology behind IOT. (08 Marks)
b. With a neat diagram, briefly explain MQTT and XMPP message communication protocol for message interchange between M2M/IOT device objects and web objects. (08 Marks)
- 3 Compare and contrast:
a. IPV4 and IPV6 (05 Marks)
b. HTTP and HTTPS (05 Marks)
c. FTP and TELNET (06 Marks)
- 4 a. Discuss 6 LOWPAN protocol stack. (08 Marks)
b. With a neat diagram, discuss IOT cloud based data collection, storage and computing services using Nimbits. (08 Marks)
- 5 a. What are the features of Arduino IDE that enables the programming task simpler at Arduino platform? (04 Marks)
b. List the steps involved while programming of Arduino for usage of analog sensor devices at SPI port. (04 Marks)
c. With a neat diagram, discuss briefly five levels for software development for applications and services in IOT or M2M. (08 Marks)
- 6 a. List the OWASP-Vulnerabilities in IOT Applications/services. (04 Marks)
b. Discuss briefly security function group components with regards to IOT reference architecture. (06 Marks)
c. With a neat diagram, discuss a layered attacker model and possible attacks on layers. (06 Marks)
- 7 a. What are the major challenges wireless sensor networks are facing? Explain in detail. (10 Marks)
b. Describe the enabling technologies for wireless sensor networks. (06 Marks)
- 8 a. Describe the single node architecture with appropriate diagram. (08 Marks)
b. Explain briefly about requirements for WSN service interface. (08 Marks)
- 9 Write short notes on:
a. LEACH (06 Marks)
b. SMACS (05 Marks)
c. TRAMA (05 Marks)
- 10 Write short notes on:
a. Energy efficient routing (05 Marks)
b. Geographic routing (05 Marks)
c. Hierarchical networks by clustering. (06 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.