



## 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)

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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.