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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)**

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