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CSE 1818 OE 51

21/6/2✓

Roll No. of candidate

2022

B.Tech. 8th Semester End-Term Examination

INTERNET OF THINGS

CSE

(New Regulation 2017-18 & New Syllabus 2018-19)

Full Marks – 70

Time – Three hours

The figures in the margin indicate full marks for the questions.

Answer Question No. 1 and any *four* from the rest.

1. Answer the following questions : $(10 \times 1 = 10)$

    (i) Which of the following is the way in which an IoT device is associated with data?

    (a) Internet   (b) Cloud

    (c) Automata   (d) Network

    (ii) An IoT network is a collection of ————— devices.

    (a) Signal   (b) Machine to Machine

    (c) Interconnected   (d) Network to Network

    (iii) What is the main purpose of WoT (Web of Things) in the IoT?

    (a) Improve the usability and interoperability

    (b) Reduce the security

    (c) Complex the development

    (d) Increase the cost

    (iv) Which of the following is not an application of IoT?

    (a) Wearables   (b) Smart Grid

    (c) Arduino   (d) Smart City

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(v) What is the Arduino UNO?

   (a) Software   (b) Hardware device

   (c) Network   (d) Protocol

(vi) What is the full form of the MQTT?

   (a) Multi-Queue Telemetry Things

   (b) Multiple Queue Telemetry Things

   (c) Message Queue Telemetry Things

   (d) Message Queue Telemetry Transport

(vii) Which of the following layers provides end-to-end communication in IoT?

   (a) Logical layer   (b) Data link layer

   (c) Transport layer   (d) Session layer

(viii) Which of the following protocols is used by USART?

   (a) RS32   (b) R5232C

   (c) 4RS85   (d) All of the these

(ix) What is the full form of HDLC?

   (a) Higher Data Level Communication

   (b) Higher Data Link Communication

   (c) High-Level Data Link Control

   (d) High Data Level Control

(x) How many logic signals are there in the SPI protocol?

   (a) Five signals   (b) Six signals

   (c) Nine signals   (d) Zero signals

2. (a) What is Internet of Things (IoT)? What are the components required to design IoT device and which devices arc called IoT devices, explain with example.   (10)

   (b) What are the different challenges of IoT?   (5)

3. (a) Explain four pillars of IoT and how they are interconnected with each other?   (7)

   (b) Why do IoT systems have to be self adapting and self configuring? (4)

   (c) What are the different functional blocks of IoT system?   (4)

4. (a) What are the architectural constraints of REST? Explain in detail. (10)

(b) Determine the IoT levels for designing home automation IoT system including smart lighting and intrusion detection. (5)

5. (a) Explain the differences between Machine to Machine and IoT. (8)

(b) Describe how SDN can be used for various levels of IoT? (7)

6. (a) What is the relation between WSN and IoT? Explain with example. (5)

(b) Explain Raspberry Pi learning board with its various components. (10)

7. (a) What is the role of cloud computing in 'Internet of Things'? (5)

(b) Explain the following with respect to Arduino programming : (6)

    (i) Structure

    (ii) Functions

    (iii) Variables

    (iv) Data types

(c) Explain smart city security architecture. (4)