CBCS SCHEME

USN | | | | | | | | | | |

20MCA32

Third Semester MCA Degree Examination, July/August 2022
Internet of Things

Time: 3 hrs. Max. Marks: 100

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

Module-1

1 a. What is IoT? Explain in detail on genesis of IoT. **(08 Marks)**

b. What does IoT and Digitization mean? Elaborate "IoT impact on Real World". **(08 Marks)**

c. Write a Python program to count the number of words and characters in a given string. **(04 Marks)**

OR

2 a. Discuss IoT challenges. **(04 Marks)**

b. Explain the M2M IoT architecture with neat diagram. **(08 Marks)**

c. Explain the Core IoT functional stack. **(08 Marks)**

Module-2

3 a. Define Sensors and Actuators. Explain how they interact with the physical world. **(08 Marks)**

b. Define smart objects. Explain its characteristics. **(08 Marks)**

c. Explain "IoT Access Technologies. **(04 Marks)**

OR

4 a. What is SANET? Explain some advantages and disadvantages that a wireless based solution offers. **(08 Marks)**

b. Explain the LoRaWAN standardization and alliance, MAC layer. **(08 Marks)**

c. Write a python program to find area of triangle using Heron's formula without using Math library. **(04 Marks)**

Module-3

5 a. Discuss various IoT application transport methods. **(08 Marks)**

b. What is CoAP? Draw CoAP message format. Explain its all fields. **(08 Marks)**

c. Write a note on generic web-based protocols. **(04 Marks)**

OR

6 a. Describe MQTT framework and message forma in detail. **(08 Marks)**

b. Explain the key advantages of Internet Protocol. **(08 Marks)**

c. Compare between CoAP and MQTT. **(04 Marks)**

Module-4

7 a. Explain neural network in machine learning with a detailed example. **(08 Marks)**

b. Discuss the different elements of Hadoop with a neat diagram. **(08 Marks)**

c. Write a note on Massively Parallel Processing (MP) databases. **(04 Marks)**

OR

8 a. Discuss Big data analytics tools and technology. **(08 Marks)**
b. Explain the different steps and phases of OCTAVE Allegro methodology. **(08 Marks)**
c. Write a note on FAIR formal Risk Analysis. **(04 Marks)**

Module-5

9 a. Explain the different pins/parts of Arduino Uno Board. **(08 Marks)**
b. With a neat diagram, explain Raspberry Pi board. **(08 Marks)**
c. Write a Python program on Raspberry Pi to blink an LED. **(04 Marks)**

OR

10 a. Discuss the different layers of IoT Smart city Traffic architecture. **(08 Marks)**
b. With the case study, explain smart and connected parking using Raspberry Pi. **(08 Marks)**
c. What are the advantages and disadvantages of smart parking architecture? **(04 Marks)**

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