H Roll No. ....

TCS–604/TIT–604

B. TECH. (CS/IT) (SIXTH SEMESTER) END SEMESTER EXAMINATION, 2019

INTERNET OF THINGS

Time : Three Hours

Maximum Marks : 100

Note : (i) This question paper contains five questions.

(ii) All questions are compulsory.

(iii) Instructions on how to attempt a question are mentioned against it.

(iv) Total marks assigned to each question are **twenty.**

1. Attempt any *two* questions of choice from (a), (b) and (c). (2×10=20 Marks)

   (a) (i) What are various research challenges in the field of IOT ? 5

   (ii) What is the various network and communication technologies can be used to implement an IOT application ? 5

(b) (i) Why does IOT system have to be self-adapting and self-configuring in nature?   5

(ii) Explain layered IOT architecture using a figure.   5

(c) (i) Explain DNA of IOT with suitable diagram.

(ii) Explain different types of sensors with its applications.

2. Attempt any *two* questions of choice from (a), (b) and (c).   (2×10=20 Marks)

(a) (i) What's the difference between IEEE 802.15.4 and ZigBee wireless?   5

(ii) Explain Modbus with suitable diagram.   5

(b) Explain the working of MQTT Protocol. How is it different from SMOTT protocol?   10

(c) What is BACnet Protocol? Explain the working of SCADA system.   10

3. Attempt any *two* questions of choice from (a), (b) and (c).   (2×10=20 Marks)

(a) Explain the cloud of thing architecture. What do you understand by cloud middleware? Explain with example.   10

(b) What is WoT? How WoT connected to IoT? What are the limitations of IoT?   10

(c) (i) What is Grid Computing? What do you understand by SOA?   5

(ii) Explain mobile cloud computing and its architecture along with its layers.   5

4. Attempt any *two* questions of choice from (a), (b) and (c).   (2×10=20 Marks)

(a) Explain integrated billing solutions in the Internet of Things for business. Explain with suitable example.

(b) Write short notes on the following:

(i) Cascading behavior in networks

(ii) Small world phenomenon

(c) Give the models for the internet of things. What is agent-based modeling? Explain.

5. Attempt any *two* questions of choice from (a), (b) and (c).   (2×10=20 Marks)

(a) Write a short note on "Smart Electric Vehicle Charging Infrastructure using internet of things.

(b) Write the steps involved in blinking an LED with the Raspberry's Pi GPIO.

(c) Write a short note on the role of the internet of things for increased autonomy and agility in collaborative production environment.

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