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Roll No. 22 9 4 0 38

TCS-331

**B. TECH. (CSE) (THIRD SEMESTER)
END SEMESTER**

EXAMINATION, Dec., 2023

FUNDAMENTALS OF IoT

Time : Three Hours

Maximum Marks : 100

- Note :** (i) All questions are compulsory.
(ii) Answer any *two* sub-questions among (a), (b) and (c) in each main question.
(iii) Total marks in each main question are **twenty**.

(iv) Each sub-question carries 10 marks.

1. (a) Discuss History and Lifecycle of IoT.

(CO1)

(b) Explain sensors and actuators. Are they both same or different ? Support your notes with example. (CO1)

(c) What are characteristics of WSN ? (CO1)

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2. (a) Discuss wireless medium access issues in reference to the IoT. (CO2)
- (b) What are the different ways for Sensors to communicate in WSN ? Comment. (CO2)
- (c) Differentiate between FOG, EDGE and CLOUD Computing. (CO2)
3. (a) Comment on RFID technology. What is the difference between passive and active tags ? (CO3)
- (b) Discuss session and tags for RFID. (CO3)
- (c) What is the probability that k th sensor will be selected as CH in cluster of 20 sensors ? Assume essentials. (CO3)
4. (a) What is authentication and authorization ? Discuss with an example. (CO4)
- (b) What is Bar Code technology ? From your perspective, which one is better in Bar code and RFID ? Justify your answer. (CO4)
- (c) Draw and explain service-oriented architecture for IoT. (CO4)

(3)

5. (a) Assume that we deployed a network to monitor environmental parameters, agriculture applications and for healthcare. Explain that data from which application shall be processed at EDGE, FOG and Cloud. Support with an example. (CO5)
- (b) Write Arduino code for blinking LED for duty cycle of 25% active period. (CO5)
- (c) What is Arduino IDE ? How is it launched ? (CO5)