Total No. of Questions : 8]

SEAT No. : [ ]

PD4245

[Total No. of Pages : 2

[6403]-39

T.E. (Computer Engineering)

INTERNET OF THINGS AND EMBEDDED SYSTEMS

(2019 Pattern) (Semester - V) (310245(A)) (Elective - I)

Time : 2½ Hours] ***[Max. Marks : 70***

Instructions to the candidates:

1) ***Attempt Q.1 or Q.2, Q.3 or Q.4, Q.5 or Q.6, Q.7 or Q.8.***
2) ***Neat diagram must be drawn wherever necessary.***
3) ***Assume suitable data if necessary.***

Q1) a) Evaluate the importance of each step in the IoT design methodology. **[6]**

b) Demonstrate SCADA pillar of IoT with Suitable IoT System. **[6]**

c) Illustrate connectivity technologies used in IoT with proper example. **[6]**

OR

Q2) a) Discuss the suitability of different communication models for specific IoT applications. **[6]**

b) Demonstrate the use of RFID with the help of suitable IoT Application. **[6]**

c) Provide a ease study of a home automation system using IoT communication models. **[6]**

Q3) a) Critically evaluate the role of wireless sensor network (WSN) protocols in enabling efficient communication among sensor nodes in IoT deployments. **[6]**

b) Classify the different Topology of IEEE 802.15.4 and explain with suitable diagram. **[6]**

c) Analyze the Modbus protocol and its usage in industrial IoT applications. **[5]**

OR

P.T.O.

Q4) a) Analyze the role of RFID protocols in supply chain management and inventory tracking. **[6]**

b) Illustrate the various IoT applications developed using IP based protocols. **[6]**

c) Critically evaluate the advantages and limitations of Zigbee technology in home automation systems. **[5]**

Q5) a) Design a Django-based RESTful API for an IoT system. **[8]**

b) Design a cloud storage model for a fleet management system. Discuss the data synchronization, real-time data processing, and backup strategies to ensure seamless access to vehicle telemetry and operational data from multiple locations. **[10]**

OR

Q6) a) Demonstrate Amazon Cloud platform usage for IoT applications. **[8]**

b) Apply the concept of cloud computing to design the Weather forecasting system with proper explanation. **[10]**

Q7) a) Predict the possible security challenges in designing secure IoT applications. **[8]**

b) Illustrate the challenges in securing IoT applications. **[9]**

OR

Q8) a) Examine how threat model is useful in securing IoT applications. **[8]**

b) Design a security model for an IoT ecosystem, encompassing all the necessary components, protocols and mechanisms to ensure end-to-end security. **[9]**

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