

Total No. of Questions : 8]

SEAT No. :

PD4245

[6403]-39

[Total No. of Pages : 2

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 case 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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