[6003]-350

T.E. (Computer)
INTERNET OF THINGS AND EMBEDDED SYSTEMS
(2019 Pattern) (Semester - I) (Elective-I) (310245(A))

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) Demonstrate the use of different networking components and devices required for the IoT application design. Consider smart irrigation system as an example for it. **[6]**

b) Demonstrate the IoT communication Models. **[6]**

c) Illustrate the different pillars of IoT. **[6]**

OR

Q2) a) Illustrate steps of IoT design methodology for smart forest fire detection. **[6]**

b) Demonstrate the Web socket API with suitable IoT system. **[6]**

c) Categorize requirement of connectivity technologies for IoT system development and explain any one of them in brief. **[6]**

Q3) a) Examine the different issues in standardization of IoT Protocols. **[6]**

b) Classify the different IoT Protocols used at Network layer and explain any one of them in brief. **[6]**

c) Show the use of LoRa protocol in the smart irrigation system development. **[5]**

OR

Q4) a) Classify between M2M and SCADA Protocol. **[6]**

b) Demonstrate the use of IP based protocols in the IoT Applications. **[6]**

c) Apply the appropriate IoT protocol to develop smart irrigation system with proper explanation. **[5]**

Q5) a) Examine how Cloud Computing is an IoT enabling technology with the suitable example. **[8]**

b) Use the knowledge of Cloud Computing to demonstrate.
   i) Auto Bahn for IoT
   ii) Xively Cloud for IoT **[10]**

OR

Q6) a) Show that Cloud computing is the fusion of Grid Computing and SOA. **[8]**

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

Q7) a) Predict the possible vulnerabilities in designing smart home intrusion detection system. **[8]**

b) Apply the key elements of IoT security for securing the forest fire detection system with proper explanation. Enlist possible threats may encountered in designing such applications. **[9]**

OR

Q8) a) Illustrate the challenges in securing IoT applications. **[8]**

b) Use security concepts to identify different misuse cases (at least 03) in each of the following IoT applications: **[9]**
   i) Smart Home Automation.
   ii) Smart Parking System.
   iii) Smart Irrigation Sytem.

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