

Total No. of Questions : 8]

SEAT No. :

**P809**

**[5870] - 1129**

[Total No. of Pages : 2

**T.E. (Computer Engineering)**

**INTERNET OF THINGS AND EMBEDDED SYSTEMS**

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

*Time : 2½ Hours]*

*[Max. Marks : 70*

*Instructions to the candidates:*

- 1) Answer Q. 1 or Q. 2, Q. 3 or Q. 4, Q. 5 or Q. 6, Q. 7 or Q. 8.
- 2) Neat diagrams must be drawn wherever necessary.
- 3) Assume suitable data, if necessary.

**Q1)** a) Demonstrate the working of Publish-Subscribe Communication model using Diagram with suitable application. [6]

b) Illustrate REST based Communication API with Suitable IoT System. [6]

c) Classify the four pillars of IoT. [6]

OR

**Q2)** a) Illustrate steps of IoT design methodology for smart irrigation system. [6]

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

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

**Q3)** a) Illustrate different issues with standardization of IoT Protocols. [6]

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

c) Show the use of LoRa protocol in any suitable IoT application development. [5]

OR

*P.T.O.*

- Q4)** a) Classify between RFID and SCADA Protocol. [6]  
b) Illustrate the various IoT applications developed using IP based protocols. [6]  
c) Show with suitable reasons why Zigbee is popular than Wi - Fi and Bluetooth in IoT. [5]

- Q5)** a) Demonstrate Python Web Application Framework - Django with the suitable example. [8]  
b) Use the knowledge of Cloud Computing to demonstrate  
i) Amazon Auto Scaling.  
ii) Xively Cloud for IoT. [10]

OR

- Q6)** a) Show that WAMP and its key concepts are useful in Cloud based IoT application Development. [8]  
b) Apply the concept of cloud computing to design the smart irrigation system with proper explanation. [10]

- Q7)** a) Predict the possible challenges in designing secure IoT applications. [8]  
b) Illustrate the classic pillars of information assurance while securing the IoT application. [9]

OR

- Q8)** a) Illustrate the threat model in securing IoT applications. [8]  
b) Use security concepts to identify different threats (at least 03 in each) in the following IoT applications:  
i) Smart Home Automation  
ii) Smart Parking System  
iii) Smart Irrigation System [9]

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