Total No. of Questions : 8] **SEAT No. :**

PB3781 **[Total No. of Pages : 2**

[6262]-39
T.E. (Computer Engineering)
INTERNET OF THINGS & EMBEDDED SYSTEMS
(2019 Pattern) (Semester-I) (310245 A) (Elective- I)

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 and Q.7 or Q.8.***
2) ***Draw neat & labelled diagrams if necessary.***
3) ***Figures to the right indicate full marks.***
4) ***Assume Suitable data, if necessary.***

Q1) a) Discuss the various steps in IoT design methodology? **[6]**

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

c) Explain M2M communication in detail. **[5]**

OR

Q2) a) Describe device and component integration for IoT based home automation system. **[6]**

b) Demonstrate the working of push-pull communication model using diagram with suitable application. **[6]**

c) What are horizontal and vertical of IoT applications? **[5]**

Q3) a) What is 6LoWPAN? 6LoWPAN and EPC standardization. **[6]**

b) Explain SCADA protocol standardization. **[6]**

c) What is MQTT and explain in detail. **[6]**

OR

Q4) a) Explain LoRA based smart Irrigation system. **[6]**

b) Explain MODBUS protocol in detail. **[6]**

c) Examine that why ZigBee is popular than Wi-Fi and Bluetooth in IoT. **[6]**

P.T.O.

Q5) a) Define software define networking & Explain architecture of SDN. **[6]**

b) Write a short note on cloud standardization. **[6]**

c) Describe the IoT messaging mechanisms called WAMP (Auto Bahn for IoT). **[6]**

OR

Q6) a) Define Cloud of Things & What is cloud communication API? **[6]**

b) Explain the Python Web application framework Django. **[6]**

c) Explain the different cloud-based services offered by Amazon for IoT. **[6]**

Q7) a) Write a short note on Light weight cryptography. **[6]**

b) What is Activity Modelling of Threats? & Explain access control issue with respect to IoT security. **[6]**

c) What are the different vulnerabilities of IoT and how to handle? **[5]**

OR

Q8) a) Examine how threat model is useful in securing IoT applications. **[6]**

b) List out security requirements for IoT base systems. & Discuss some vulnerabilities in IoT. **[6]**

c) What are the challenges in designing the IoT application. **[5]**