

Total No. of Questions : 8]

P-488

SEAT No. :

[Total No. of Pages : 2

[6003]-709

**T.E. (Information Technology)**  
**INTERNET OF THINGS (Elective - I)**  
**(2019 Pattern) (Semester - I) (314445D)**

*Time : 2½ Hours] [Max. Marks : 70*

*Instructions to the candidates :*

- 1) Answers 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) Figures to the right indicate full marks.
- 4) Assume suitable data if necessary.

**Q1)** a) What is Bluetooth? Explain the following term of Bluetooth i) Piconet  
ii) Scatternet. [9]

b) Explain in detail the MQTT protocol. [9]

OR

**Q2)** a) Explain Bluetooth protocol architecture. [9]

b) What are the development reasons for AMQP? Explain the AMQP model with its main elements. [9]

**Q3)** a) Draw and explain the interfacing of the LED using Raspberry Pi with the program. [8]

b) Explain Arduino. What are the different features of Arduino? Discuss digital, analog, and power pins. [9]

OR

**Q4)** a) What is Raspberry Pi? Explain OS installation steps. [8]

b) Draw and explain the interfacing of the servo motor using Arduino Uno with the program. [9]

P.T.O.

**Q5)** a) What are different IoT systems vulnerable? Also, explain IoT security challenges. [8]

b) What is cloud computing? Explain elements of cloud computing. Also, explain the characteristics of cloud computing. [9]

OR

**Q6)** a) Explain the use and design of a RESTful web API. [8]

b) Explain the following key elements of IoT Security: Identity establishment, Access control, Data and message security. [9]

**Q7)** a) Write short note on : [9]

- i) Home Automation.
- ii) Indoor Air quality monitoring.

b) Explain following IoT Applications i) Structural Health Monitoring  
ii) Smart Parking iii) Smart Road. [9]

QR

**Q8)** a) Write short note on : [9]

- i) Wearable Electronics.
- ii) Smart Payments.

b) Explain how IoT is useful in environment - Weather Monitoring and Noise Pollution Monitoring. [9]

