

Total No. of Questions : 8]

SEAT No. :

**PB2293**

**[6263]-131**

[Total No. of Pages : 2

**B.E. (Electronics & Telecommunication)**

**MODERNIZED IOT**

**(2019 Pattern) (Semester - VII) (404184 E) (Elective - III)**

*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) Figures to the right indicate full marks.
- 4) Use of an electronic pocket calculator is allowed.
- 5) Assume Suitable data, if necessary.

**Q1) a)** Compare IPv6, 6LoWPAN and 6Ti SCH Network layer Protocols. List three applications of each. **[9]**

**b)** Describe in detail the wireless HART Communication Protocol. **[8]**

**OR**

**Q2) a)** Describe the session layer-HTTP, CoAP, and MQTT protocols. Also write their advantages and disadvantages. **[9]**

**b)** Describe in detail the TCP and UDP transport layer protocol. **[8]**

**Q3) a)** What is an IoT board? List the available IoT boards. Explain interfaces that IoT boards typically have. **[9]**

**b)** List out and explain any 8 Arduino functions in detail. **[8]**

**OR**

**Q4) a)** Interface the LED with Arduino board and write a program for LED Blinking? **[9]**

**b)** Explain deployment of IoT with Raspberry Pi Board? **[8]**

**P.T.O.**

- Q5) a)** Explain the application of IIoT in: [9]
- i) Oil and Gas Industry,
  - ii) Healthcare

- b) Describe the catalyst and Precursors of IIoT and innovations in IIoT with its challenges. [9]

OR

- Q6) a)** Draw and explain the Architecture of IIoT. [9]

- b) What is Zigbee? Explain Zigbee architecture. List out applications of Zigbee. [9]

- Q7) a)** Explain in detail the Air Pollution monitoring system. [9]

- b) Discuss in detail the concept of smart cities. [9]

OR

- Q8) a)** Design an IoT-based forest fire detection system, specifying the sensors, communication methods, and data analysis techniques. [9]

- b) Briefly explain the application of IoT in: [9]

- i) Smart Grid and
- ii) Smart Parking

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