

Total No. of Questions : 8]

SEAT No. :

PD4275

[Total No. of Pages : 2

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T.E. (Electrical)

**IOT AND ITS APPLICATIONS IN ELECTRICAL ENGINEERING
(2019 Pattern) (Semester - VI) (303151A) (Elective - II)**

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) Figures to the right indicate full marks.

Q1) a) 2 LEDs - LED1 and LED2, are connected to digital pin No. 2 and 6 of Arduino UNO respectively. Write a program to blink these LEDs continuously, with a delay of 2 sec. While blinking, LED1 will glow with 80% brightness and LED2 should glow with 30% brightness. **[10]**

b) What is a serial monitor in Arduino IDE? Explain any 4 functions in detail with respect to serial monitor. **[8]**

OR

Q2) a) Write a program in Python to accept lower and upper limit of a range of numbers from user and print all the odd numbers in that range. **[10]**

b) Write a short note on Arduino Integrated Development Environment (IDE). **[8]**

Q3) a) Write a program to read data from LM 35 temperature sensor and display it on serial monitor every 30 seconds, using Arduino IDE. Sensor is connected to D2 pin of NodeMCU. **[9]**

b) Write a short note on sound sensors. **[8]**

OR

P.T.O.

Q4) a) Draw in detail an interfacing diagram of a dc motor through L293D with nodeMCU and explain in brief the working. **[9]**

b) What is an IR sensor ? Explain its working principle and various types. **[8]**

Q5) a) State and explain salient features of Zigbee communication technology. **[9]**

b) Discuss 6LoWPAN communication technology, on the basis of features, advantages, security and interoperability. **[8]**

OR

Q6) a) Describe salient features of Bluetooth communication technology. **[9]**

b) Compare Wi-Fi, BLE and Zigbee communication technology. **[8]**

Q7) a) With a suitable block diagram, explain one IoT application of Home Automation. **[10]**

b) State and explain the steps in reading the sensor data and sending it to cloud platform. **[8]**

OR

Q8) a) Write a simple html code to create a web page and display the heading "IoT Applications" and two buttons - START and STOP. The background colour of the webpage should be light green and display should be centrally aligned. **[10]**

b) What is meant by Data Visualization ? Explain in short, any 4 techniques of data visualization. **[8]**

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