

Total No. of Questions : 4]

SEAT No. :

**PA-49**

[Total No. of Pages : 2

[59311]77

**S.E. (Automobile and Mechanical Engineering/Mechanical Sandwich)**

**ELECTRICAL AND ELECTRONICS ENGINEERING**

**(2019 Pattern) (Semester - I) (203156)**

*Time : 1 Hour]*

*[Max. Marks : 30*

*Instructions to the candidates:*

- 1) *Solve Q1 or Q2, Q3 or Q4.*
- 2) *Figures to the right indicate full marks.*
- 3) *Neat diagrams must be drawn wherever necessary.*
- 4) *Assume suitable additional data, if necessary.*
- 5) *Use of non-programmable calculator is allowed.*

**Q1) a)** Distinguish between a microcontroller and a microprocessor considering memory, speed of operations and flexibility of usage. [3]

**b)** Write any six features on A Tmega 328P microcontroller. [6]

**c)** Explain the following functions used to handle GPIO in ATmega 328P based Arduino board with help of syntax: [6]

- i) pinMode( )
- ii) digitalWrite( )
- iii) digitalWrite ( )

OR

**Q2) a)** What is an embedded system? Give any two examples of embedded systems. [3]

**b)** Write any six features of Arduino IDE and explain structure of a program in Arduino. [6]

**c)** Explain the following Arduino functions with the help of appropriate syntax: [6]

- i) analogRead( )
- ii) analogReference( )
- iii) analogWrite( )

**P.T.O.**

- Q3)** a) Write any three features of ADC in ATmega 328P. [3]
- b) Draw interfacing diagram of an LED with Arduino board. Also write algorithm and the program to blink the LED for every 1 second interval.[6]
- c) Explain the following functions used for serial communication in Arduino. [6]
- i) serial.begin()
  - ii) serial.print()
  - iii) serial.println()

OR

- Q4)** a) Draw interfacing diagram of LCD with ATmega 328P. [3]
- b) What is LM35? Draw interfacing diagram of LM35 with ATmega 328P. Write algorithm to display temperature on LCD. [6]
- c) Explain construction and working of LVDT. Draw interfacing diagram of LVDT with ATmega328P. [6]