

Total No. of Questions : 4]

PE590

SEAT No. :

[Total No. of Pages : 2

[6578]-63

S.E. (Automobile & Mechanical/Mechanical Sandwich) (Insem)

ELECTRICAL AND ELECTRONICS ENGINEERING

(2019 Pattern) (Semester - III) (203156)

Time : 1 Hour]

[Max. Marks : 30

Instructions to the candidates:

- 1) *Solve Q.1 or Q.2, Q.3 or Q.4.*
- 2) *Figures to the right indicate full marks.*
- 3) *Neat diagrams must be drawn wherever necessary.*
- 4) *Assume suitable additional data, if necessary.*

- Q1)** a) What is an embedded system? Draw the block diagram showing a typical embedded system and quote any three applications of embedded systems. [7]
- b) Explain the following Arduino functions with the help of proper syntax: [8]
- i) pinMode()
 - ii) digitalWrite()
 - iii) digitalRead()
 - iv) delay()

OR

- Q2)** a) Draw the generalised block diagram of a microcontroller based system and write the features of ATmega 328P microcontroller. [7]
- b) Write any four important features in case of each of the following: [8]
- i) Arduino UNO Board
 - ii) Arduino IDE

P.T.O.

Q3) a) Where is ADC located on Arduino Board? Explain the following terms in the context of ADC on Arduino and specify their typical values: [7]

- i) Resolution
- ii) Conversion Time
- iii) Data Rate

b) Draw the interfacing diagrams of the following Output devices with ATmega328P based Arduino board : [8]

- i) An LED
- ii) A 16×2 LCD module

OR

Q4) a) Draw a labelled pin diagram of 16×2 LCD module and write the functions of the following pins: (i) RS (ii) R/W (iii) E [7]

b) What is a strain gauge? Draw a neat diagram showing the interfacing of strain gauge bridge circuit with Arduino. Write the algorithm to display the digital equivalent value of strain gauge output on serial monitor. [8]

