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S.E. (Robotics & Automation) (Insem)
INDUSTRIAL ELECTRONICS AND ELECTRICAL
TECHNOLOGY
(2019 Pattern) (Semester-III) (211501)

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.*
5) *Use of a non-programmable calculator is allowed.*

Q1) a) State whether the following statements are true or false. **[4]**

    i). Arduino UNO ATmega 328-P has 6 analog pins starting from A0 to A5.

    ii) Arduino UNO ATmega 328-P has 10 digital pins.

    iii) The syntax pinMode (pin, mode) is used to configure the specified pin to behave either as an input or an output.

    iv) Arduino Uno board has various digital I/O pins which can be used as input or output.

  b) Write any five key features of Arduino along with their explanation. **[5]**

  c) What is the use of the following syntax while programming Arduino? Explain its meaning with one example. **[6]**

Void setup()

{

}

Void loop()

{

}

OR

Q2) a) Explain any four characteristics of the embedded system. **[4]**

b) Give the point of comparison between microprocessors and microcontrollers **[5]**

c) Explain the function used to handle GPIO in AT mega 328 P-based Arduino board with suitable examples: **[6]**

   i) pin Mode()

   ii) digital Write()

   iii) digital Read()

Q3) a) Explain the following functions along with their syntax **[4]**

   i) Serial. write()

   ii) Serial. available()

b) Draw the interfacing diagram of the keypad with the Arduino board. Also, write the basic algorithm used for this interfacing. **[5]**

c) Draw and explain the interfacing of an LED with an Arduino board. Write an algorithm to blink an LEd. **[6]**

OR

Q4) a) Explain the following functions along with their syntax. **[4]**

   i) Serial. println( )

   ii) Serial. read( )

b) Match the pairs correctly. **[5]**

Sr.No.	Syntax	Meaning
1	pinMode (10)	Read the status of digital pin number 8 i.e., whether the HIGH or LOW value is present at that pin, and store the status of the pin to a given variable
2	int Val = digital Read (8)	Position the LCD cursor; that is; set the location at which subsequent text written to LCD will be displayed.

3	Lcd. SetCursor(col,row)	digital pin 10 of Arduino is set as INPUT
4	Lcd.print("hello world")	It is used to begin serial communication and also set the data transfer rate for communication.
5	Serial, begin (baud_rate);	It prints hello world on LCD screen.

c) Draw the interfacing diagram of LCD with Arduino board. Also, write the basic algorithm used for this interfacing. **[6]**