

Total No. of Questions : 4]

SEAT No. :

PA-2486

[Total No. of Pages : 2

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**S.E. (Robotics & Automation)**

**INDUSTRIAL ELECTRONICS & ELECTRICAL TECHNOLOGY**

**(2019 Pattern) (Semester - I) (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) What are the key features of Arduino IDE? [4]  
b) What is role of embedded system in electronic sector? Explain the characteristics of Embedded systems. [5]  
c) What is Microprocessor? Draw the block diagram of Microprocessor and explain each part of it in detail. [6]

OR

- Q2)** a) What is data acquisition system? Draw its block diagram. [4]  
b) Are the following valid variable names in Arduino IDE software? Write the answer in the form of valid or invalid. [5]  
i) \_ROBOTICS.  
ii) RA IEET.  
iii) RA#.  
iv) If.  
v) RA\_IEET.  
c) Explain following conditional statements in Arduino programming with example [6]  
i) If else statement.  
ii) If else If statement.

**P.T.O.**

- Q3) a)** Explain the following functions along with their syntax. [4]
- i) Serial.write( ).
  - ii) Serial.available( ).
- b) Write the meaning of the following instructions : [5]
- i) lcd.begin(16,2);
  - ii) lcd.clear();
  - iii) delay(1000);
  - iv) Serial.begin(9600);
  - v) lcd.setCursor(10, 1);
- c) Draw the interfacing diagram of LCD with Arduino board. Also, write the basic algorithm used for this interfacing. [6]

OR

- Q4) a)** Draw the interfacing diagram of the keypad interfaced with the Arduino ATmega 328P. [4]
- b) Explain the concept of UART related to Arduino UNO (ATmega328). [5]
- c) Write the algorithm and the sketch (program) interfacing of the LED to Arduino ATmega 328P. Why the resistor is to be connected in between the digital pin of Arduino to the LED? [6]

