

SYIT/SEM IV/IES/REG

Time: 2½ hrs.

Marks:75

- Note:**
1. All questions are compulsory with internal choice.
 2. Draw neat diagrams wherever necessary.
 3. Figures to the right indicate full marks.

- Q.1 Answer the following (any three) (15)**
- (a) Compare microprocessor with microcontroller.
 - (b) Differentiate between general purpose system and embedded system.
 - (c) Explain Immediate addressing mode with example.
 - (d) Write a short note on different types of sensors used in embedded system.
 - (e) Describe the architecture of PIC microcontroller.
 - (f) Differentiate Little Endianness from Big Endianness in embedded system.
- Q.2 Answer the following (any three) (15)**
- (a) Write a short note on I2C communication.
 - (b) Illustrate SPI communication with proper diagram.
 - (c) Write short note on infrared communication.
 - (d) Explain the working principal of RFID.
 - (e) Explain GSM communication in brief.
 - (f) Compare serial communication with parallel communication.
- Q.3 Answer the following (any three) (15)**
- (a) Explain the Arduino IDE with a proper diagram.
 - (b) Elucidate the Arduino input output functions.
 - (c) Explain the structure of Arduino program.
 - (d) Describe the following math functions in Arduino.
i) sq ii) sqrt iii) pow iv) abs v) map
 - (e) Write an Arduino program to blink an LED.
 - (f) List and explain the communication functions in Arduino.
- Q.4 Answer the following (any three) (15)**
- (a) Explain the interfacing of Arduino with Temperature sensor with the help of a diagram.
 - (b) Explain Light Sensitive Sensors used in Arduino.
 - (c) Describe the interfacing of Ultrasonic Sensor with Arduino.
 - (d) Write a short note on colour sensor.
 - (e) Explain the use of the following sensors:
i) Gas Sensor ii) Hall Sensor
 - (f) Write a program to send a '0' or a '1' based on the basis of whether the line sensor is on black patch or a white patch.
- Q.5 Answer the following (any three) (15)**
- (a) Write a brief note on the wireless radio wave communication used in Arduino.
 - (b) Give an account on Wireless Control Using the Arduino Infrared Transmitter and Receiver.
 - (c) Describe the Wireless Control Using the Arduino Bluetooth.
 - (d) Explain Wi-Fi used in Arduino.
 - (e) Write a short note on GPRS type of communication used in Arduino.
 - (f) Explain the case study Intelligent Lock System Using Arduino.

---X---