

SYIT/SEM IV/REG/Introduction to Embedded Systems

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) Explain the PIC architecture with neat and labelled diagram.
 - (b) What are the Characteristics of embedded system?
 - (c) Explain the Direct Addressing Mode.
 - (d) Difference between general computing system and embedded system.
 - (e) List & Explain application of Embedded system.
 - (f) Which are the Flag register in PIC microcontroller.
- Q.2 Answer the following (any three) (15)**
- (a) Illustrate Zigbee in brief.
 - (b) Write a short note on Bluetooth Module.
 - (c) Explain I2C Data Transfer Protocol.
 - (d) Define following I2C device elements:
a) RTC b) Port Expander
 - (e) Explain the working principal of RFID.
 - (f) Describe SPI communication with proper diagram.
- Q.3 Answer the following (any three) (15)**
- (a) Describe any five math functions.
 - (b) Explain the Advanced I/O functions in Arduino.
 - (c) What is the structure of an Arduino program?
 - (d) Describe the Arduino input & output functions.
 - (e) What is an Arduino IDE?
 - (f) Write an Arduino program to blink an LED.
- Q.4 Answer the following (any three) (15)**
- (a) What is a Gas sensor? Explain its code of Interfacing with Arduino.
 - (b) Explain the Interfacing of Temperature sensor with Arduino.
 - (c) Describe the interfacing of Ultrasonic Sensor with Arduino.
 - (d) Illustrate Line Tracking Sensor used with Arduino.
 - (e) What is PIR sensor? Explain its working.
 - (f) Write a short note on colour sensor.
- Q5 Answer the following (any three) (15)**
- (a) Give a brief note on the wireless radio wave communication used in Arduino.
 - (b) Write a short note on GPRS type of communication used in Arduino.
 - (c) Describe the Wireless Control Using the Arduino Bluetooth.
 - (d) Give an account on Wireless Control Using the Arduino Infrared Transmitter and Receiver.
 - (e) Explain the case study Intelligent 'Lock System Using Arduino.
 - (f) What is Timer Function of Arduino?

---X---