Exam.Code:0929
Sub. Code: 33669

2124

B.E. (Electronics and Communication Engineering)
Fifth Semester
EC-506: Advanced Microcontrollers and Applications

Time allowed: 3 Hours Max. Marks: 50

***NOTE**: Attempt five questions in all, including Question No. I which is compulsory and selecting two questions from each Unit.*

x-x-x

I. Explain the following:-

a) While creating a sketch in Arduino IDE different file extensions are used with source code Explain i.) .h ii) .cpp iii) .pde

b) Sources of interrupt

c) Basic Characteristic of real time operating system

d) Multi stage pipelining execution

e) Bootloader and JTAG (5x2)

UNIT - I

II. In Embedded System, reactive environment and time constrains play vital role why? Further, explain the application specific characteristic of an embedded system. (10)

III. Assuming that XTAL = 15 MHZ and generate the square wave of 100 KHZ at PB4 with 70% on time and 30% off time. (10)

IV. What are the values of UCSRB and UCSRC needed to configure USART for asynchronous operating mode, 8 data bits, no parity and 1 stop bits? Enable both receive and transmit. Write a programme for the AVR to set the values of UCSR Band UCSRC for this configuration. (10)

UNIT - II

V. Explain the block diagram of Atmel microcontroller used in Arduino board. (10)

VI. Interface and program 16x2 LCD with Arduino Uno board to display "ECE DEPT." on it. (10)

VII. Design a line follower robot using Arduino Uno. Justify the various types of sensors you will use for its proper functioning and their working in the project. (10)

x-x-x