Question Bank ETP 2134B EMEDDED SYSTE DESIGN (Dr P R Deshmukh)

1. Draw the and explain the block diagram of Embedded system?

2. Explain Timer section of microcontroller?

3. Explain serial port of Microcontroller?

4. Describe characteristics of Embedded system?

5. List the application of Embedded system?

6. Explain features of ardunio board and shields?

7. Explain Ardunio UNO Board?

8. Differentiate between Assembly and C Language?

9. Write ardunio programming to switch on and off led connected to pin no 13?

10. Write ardunio programming to send "hello" word serially with baud rate 9600?

11. Explain various keywords of ardunio programming digitalWrite, pinMode,timing functions,

random functions, define own functions , delay function etc?

12. Explain various decision making programming statement ?

13. Write ardunio programming for interfacing switches , buzzers, 7 segments, etc?

14. Explain various data types supported in embedded C programming?

15. Write Embedded C programming for following ?

i. Write an C program to toggle all the bits of P1 continuously

ii. Write an C program to send values of –4 to +4 to port P1.

iii. Write an C program to toggle bit D0 of the port P1 (P1.0) 50,000 times

iv. Write an C program to toggle bits of P1 continuously forever with some delay

v. Write an C program to toggle bits of P1 ports continuously with a 250 ms

vi. LEDs are connected to bits P1 and P2. Write an C program that shows the count from 0

to FFH (0000 0000 to 1111 1111 in binary) on the LEDs

vii. Write an C program to get a byte of data form P1, wait 1/2 second, and then send it to

P2.

viii. Write an C program to get a byte of data form P1, wait 1/2 second, and then send it to

P2.

ix. A door sensor is connected to the P1.1 pin, and a buzzer is connected to P1.7. Write an

C program to monitor the door sensor, and when it opens, sound the buzzer. You can

sound the buzzer by sending a square wave of a few hundred Hz.

x. The data pins of an LCD are connected to P1. The information is latched into the LCD

whenever its Enable pin goes from high to low. Write an C program to send "The Earth

is but One Country" to this LCD

xi. Write an C program to toggle all the bits of P0, P1, and P2 continuously with a 250 ms

delay. Use the sfr keyword to declare the port addresses.

xii. Write an C program to get the status of bit P1.0, save it, and send it to P2.7

continuously.

xiii. Write an C program to get bit P1.0 and send it to P2.7 after inverting it.

xiv. Write an C program to convert packed BCD 0x29 to ASCII and display the bytes on P1

and P2.

xv. Write an C program to convert ASCII digits of '4' and '7' to packed BCD and display them

on P1

xvi. Write an C program to calculate the checksum byte for the data 25H, 62H, 3FH, and

52H

xvii. Write an C program to perform the checksum operation to ensure data integrity. If data

is good, send ASCII character 'G' to P0. Otherwise send 'B' to P0

xviii. Write an C program to convert 11111101 (FD hex) to decimal and display the digits on

P0, P1 and P2.

Write program to add two nos. x and y present in memory at address 4000000H and 40000004H and store in memory 40000008H ?

Write program to add two 8 bit nos. x and y present in memory at address 4000000H and 40000001H and store in memory 40000002H

Write program to add 5 nos. present in memory from address 4000 0004H and store result in memory 4000 0030H

Write program to Convert single digit hex no into its equivalent ASCII CODE Assume that single digit hex no. is present in memory at address 0x40000000 Store equivalent ASCII CODE in memory 0x40000001

Compare two strings of 3 ASCII character ⬚ One string starts at 0x40000000 and other at 0x40000010. If both the string match store 11H in memory location 0x40000030 otherwise store FFH in memory location 0x40000030.

Multiply the two data word array of Ten nos. each ⬚ First data array is stored in memory starting from 0x40000000 and other at 0x40000040. ⬚ Multiply two array data and store result as array in memory starting from ML 0x40000080

Explain the architecture of ARM LPC2148?

-Write program to perform subtraction of two 16 bit bit nos. and store result in R5

Draw Interfacing of LED with LPC2148 and write program to blink LED connected to port pin P0.7 of LPC2148

. Draw interfacing for Common Cathode 7 segment display with LPC2148 and write C language program to display 5. Seven segment display is connected to P1.23 to P1.1

Draw interfacing for Common Cathode 7 segment display with LPC2148 and write C language program to display 0 to 9 with delay of 1 sec. Seven segment display is connected to P1.23 to P1.16

Explain the port structure of LPC2148?

Write a short note on ARM processor?

Explain pipelining concept in ARM?

Explain various operating modes of ARM?

Explain various special function register f ARM?

Explain concept of exception handling

Explain Program status register of ARM Processor?

Explain I2C serial communication Bus protocol?

Explain various serial communication protocol standard?

Explain with an example as an case study for ardunio and its shield, with interfacing issues and necessary program for the same?