Printed Pages : 2 **EEC014**

(Following Paper ID and Roll No. to be filled in your Answer Book)

PAPER ID : 2620 **Roll No.** | | | | | | | | | | |

B.Tech.

(SEMESTER-VI) THEORY EXAMINATION, 2012-13

MICROCONTROLLER

Time : 2 Hours] ***[Total Marks : 50***

Section – A

1. Answer **all** parts. **2 × 5 = 10**

   (a) Which register bank is used if we alter RS0 and RS1 of the PSW by the following two instructions ?

   SETB PSW.3

   SETB PSW.4

   (b) Name all the 16-bit registers available in 8051.

   (c) Why do we always write a program starting with ORG 0000H ?

   (d) Find the system frequency of an 89C51 if the machine cycle period is 0.546 μs.

   (e) What is the effect of executing the following two instructions ?

   MOV C,P2.3

   MOV 13H, C

Section – B

2. Answer any **three** parts. **5 × 3 = 15**

   (a) Write the following programs :

   (i) Create a square wave of 50% duty cycle on bit 0 of port 1.

   (ii) Create a square wave of 66% duty cycle on bit 3 of port 1.

   (b) Generate a square wave with an ON time of 3 ms and on OFF time of 10 ms on all pins of port 0. Assume an XTAL of 22 MHz.

   (c) Enlist important SFR registers and their addresses of an 8051 microcontroller.

(d) Draw the interfacing of 8051 to ADC0848 for channel 2 and explain all the steps we need to take for data conversion by the ADC0848 chip.

(e) Show the design of the 8255 connection to the 8051 where port A has the address 20 H. Then program the 8255 to get data from port C and send it to both ports A and B.

Section – C

Answer **all** questions. **5 × 5 = 25**

3. Draw the architecture of 8051 and explain memory organization in it.

OR

Enlist the steps to generate a time delay using the timer's mode-2. Also draw the structure of TMOD register.

4. Write a program to transfer a letter 'Y' serially at 9600 baud continuously, and also to send a letter 'N' through port 0, which is connected to a display device.

OR

Write a program to receive the data which has been sent in serial form and send it out to port 0 in parallel form. Also save the data at RAM location 60 H.

5. Show the Interrupt Vector Table for the 8051 and explain the steps in executing an interrupt in 8051.

OR

What is in an LCD Module ? Write a subroutine for command – write transaction.

6. What does it mean when it is said that a given sensor has a linear output ? Draw 8051 connection to ADC0848 and Temperature Sensor.

OR

Draw the architecture of 8096 microcontroller and compare with 8051 architecture.

7. Draw 8031 connection to external program ROM, Data RAM and Data ROM.

OR

Compare MC68HC11 microcontroller Register Structure and Features with 8051 microcontroller.