Printed Pages : 4 EIC-601

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

PAPER ID : 2522 Roll No. | | | | | | | | | | |

B.Tech.

(SEMESTER-VI) THEORY EXAMINATION, 2012-13

MICROCONTROLLER

Time : 3 Hours] *[Total Marks : 100*

SECTION – A

1. Answer **all** parts : **10 × 2 = 20**

(a) What components are normally put together with microcontroller into a single chip ?

(b) Which version of the 8051 does not have On-chip ROM ?

(c) Which program produces the "obj" file ?

(d) How many bytes space does the instruction MOV A, #40 occupy ?

(e) Find the machine cycle for a DS89C420/30 if the crystal frequency is 11.0592 MHz.

(f) Show the simple statements to send 99H to ports P 1, and P 2.

(g) Write instructions to get status of P 2.7 and put it on P 2.0.

(h) Which registers are allowed to be used for register indirect addressing mode if the data is in On-chip RAM ?

(i) Which timer of the 8051 is used to set baud rate ?

(j) What is signal conditioning ?

SECTION – B

2. Answer any **three** parts : **10 × 3 = 30**

(a) Tabulate the following :

(i) Main features of 8051 microcontroller.

(ii) Comparison of 8051 family members.

(b) (i) How an assembly language program is created, assembled and made ready to run ?

(ii) Write a program to clear 16 RAM locations starting at RAM locations, starting at RAM address 60 H.

(c) Generate a square wave with an ON time of 5 ms and an OFF time of 5 ms on all pins of port 0. Assume an XTAL of 12 MHz.

(d) Draw 8031 connection to external program ROM and explain how it differentiates On-chip and Off-chip code ROM.

(e) Draw the interfacing of 8051 to DAC808 and explain all the steps we need to take for data conversion by the DACO808 chip.

SECTION – C

Answer **all** questions : **5 × 10 = 50**

3. Explain how Timer can be used as counter. Also explain the structure of TCON register.

OR

Enlist the steps to generate a time delay using the Timer's mode-0. Also draw the structure of TMOD register.

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4. Write a program to get the x value from P 1 and send x^2 to P 2, continuously. Why do we require external pull up resistors in port-0 ?

OR

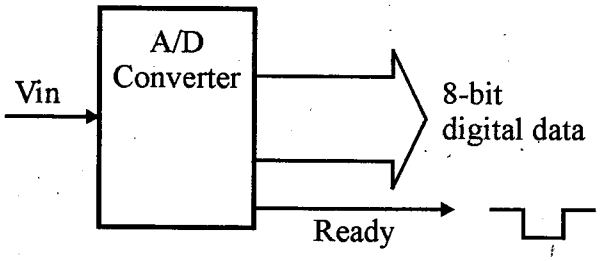
Write a program to receive the data which has been sent in serial form and send it out to port 0 in parallel form. Also save the data at RAM location 60 H.

5. Write a program to generate a square wave at bit 0 of port –C in 8255.

OR

What is in an LCD module ? Write a subroutine for command – read transaction.

6. A simple 8-bit analog-to-digital converter device, as shown, is to be interfaced to an 8051 microcomputer. The READY line goes low when conversion data is available. The READY line should be used to interrupt the 8051 microcontroller.



(i) With the aid of a block diagram show how this device can be interfaced to the 8051. Also write a program for data conversion using polling method.

OR

(i) Write an assembly language program which will capture 250 data samples from the A/D converter and store this data in XDATA memory. The program is to be interrupt driven.

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7. Draw 8031 connection to a single ROM for both program and data. Explain how it interacts ?

OR

Compare MC68HC11 Microcontroller Register Structure and features with 8051 Microcontroller. Also draw an architecture of MC68HC11 Microcontroller.
