TE/ETRX/IV CBSGS 28/5/2012

MPMC- I

Con. 4431–12. GN–8237

(3 Hours) [Total Marks : 100

Q1. is compulsory and solve any four questions from the remaining.

1. A. Explain the reset state of 8085 microprocessor and 8051 microcontroller. 05
   B. Explain the CPSR register of ARM 7 processor. 05
   C. Explain the terms T state, Machine cycle and Instruction cycle related to 8085 processor. 05
   D. Explain RAM memory organization of 8051 microcontroller. 05

2. A. Design 8085 based system with following specifications 12
      i) CPU operating at 3 MHz
      ii) 16 KB EPROM using 4 KB devices
      iii) 16 KB SRAM using 8 KB devices
      iv) One 8 bit input and one 8 bit output port performing simple I/O data transfer in I/O mapped I/O mode.

   Give its memory mapping and I/O mapping and use exhaustive decoding approach.
   B. Draw and explain the Timer/Counter block of 8051 microcontroller. 08

3. A. Explain the following ARM instructions 10
      i) ADDEQ R0,R1,R2 ii) MLA R4,R3,R2,R1
      iii) TST R2,R3 iv) BLX R0
      v) RSB r2,r3,r1, LSL #2
   B. Write a program to transmit "HAPPY" serially on Tx pin of 8051 microcontroller with a baud rate of 9600. Assume crystal frequency of 11.0592 MHz. 10

4. A. Draw and explain the interrupt structure of 8085 processor in detail. 10
   B. Write a program to transmit "HAPPY" serially on SOD pin of 8085 processor at a baud rate of 9600. Assume operating frequency of 8085 as 3 mHz. 10

5. A. Draw timing diagram for JNZ $C000_H$ instruction. 10
   B. With the help of timing diagram explain input data transfer using handshake signals of 8255. 10

6. A. Interface 16x2 LCD display to 8051 microcontroller and display a single character "H" on it. 10
   B. Write a program to generate a square wave of 2kHz using 8155 timer . Timer operates at 3 MHz. 10

7. A. Explain block diagram of 8259 peripheral IC. 10
   B. Explain any two modes of 8253 peripheral IC in detail with the help of timing diagram. 10