EX - 502

B.E. V Semester

Examination, December 2014

Microprocessor And Microcontroller

Time : Three Hours

Maximum Marks : 70

Note: i) Answer five questions. In each question part A, B, C is compulsory and D part has internal choice.

ii) All parts of each questions are to be attempted at one place.

iii) All questions carry equal marks, out of which part A and B (Max.50 words) carry 2 marks, part C (Max.100 words) carry 3 marks, part D (Max.400 words) carry 7 marks.

iv) Except numericals, Derivation, Design and Drawing etc.

Unit - I

1. a) Explain the function of following pins of 8086
   i) MN/$\overline{MX}$ ii) NMI
   b) What is the purpose of queue in the BIU of 8086 microprocessor?
   c) Draw the flag register of 8086. Explain the function of each flag.
   d) Draw and explain functional block diagram of 8086 microprocessor system.

   OR

   Explain maximum and minimum mode of operation with block diagram. Describe function of various important pins which are common in minimum and maximum mode of operation.

Unit - II

2. a) Explain the difference between the JMP and JZ instructions.
   b) List the four interrupt instructions for the microprocessor 8086.
   c) List and explain various addressing modes of 8086.

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   d) Write a program in 8086 assembly language to multiply two signed numbers store the result in RESULT memory location.

   OR

   Explain the stack structure of 8086. What is the function of stack. List and explain the stack related instructions of 8086.

Unit - III

3. a) Discuss how 8254 is used to generate square wave.
   b) Explain different DMA modes.
   c) Explain with the help of a neat diagram how ADC can be interfaced to 8086.
   d) Draw the block diagram of 8255 and explain the function of each block. Discuss various modes of 8255.

   OR

   With the help of a neat diagram discuss the various modes 8254.

Unit - IV

4. a) What is function of Timer/ counter in 8051?
   b) Explain the function of following pins of 8051
   i) ALE / PROG   ii) $\overline{EA}$/VPP
   c) Describe interrupt structure and interrupt priorities of 8051.
   d) Draw the block diagram and explain the internal architecture of 8051.

   OR

   List and explain various addressing modes of 8051. Also give examples for each mode.

Unit - V

5. a) What is RS-232 C interface standard?
   b) Describe serial communication modes.
   c) Explain various characteristics and specifications of D to A converter.
   d) How 8051 can be interfaced to stepper motor. Explain with diagram.

   OR

   Draw and explain the working of a 8051 based thyristor firing circuit.

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   b) Explain different DMA modes.
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   OR

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4. a) What is function of Timer/ counter in 8051?
   b) Explain the function of following pins of 8051
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   c) Describe interrupt structure and interrupt priorities of 8051.
   d) Draw the block diagram and explain the internal architecture of 8051.

   OR

   List and explain various addressing modes of 8051. Also give examples for each mode.

Unit - V

5. a) What is RS-232 C interface standard?
   b) Describe serial communication modes.
   c) Explain various characteristics and specifications of D to A converter.
   d) How 8051 can be interfaced to stepper motor. Explain with diagram.

   OR

   Draw and explain the working of a 8051 based thyristor firing circuit.