Roll No .....

EX - 502

B.E. V Semester

Examination, December 2015

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.

1. a) Define for 8086 microprocessor.

   i) CS ii) IP

   b) What is the importance of memory banks in 8086 based system.

   c) Find unknown value(?) for each of the following physical addresses. Assume all numbers are hexadecimal.

   i) A000:? = A0123

   ii) ?:14DA = 235DA

   iii) D765:? = DABCO

d) Describe 8086 memory interfacing and address decoding techniques of even and odd addresses for BYTE and WORD length data read.

OR

Draw pin diagram of 8086 microprocessor and write meaning of each pin.

2. a) Describe PUSH operation in 8086 microprocessor.
   b) Define for 8086 microprocessor
      i) SP ii) PC
   c) Draw read cycle timing diagram for minimum mode of 8086 microprocessor.
   d) Explain with suitable example, the addressing modes of 8086 microprocessor.

OR

Write a program in assembly level language of 8086 microprocessor to find out the largest number from an unordered array of sixteen 8-bit numbers stored sequentially in the memory locations starting at offset 0500H in the segment 2000H. Draw flow chart also.

3. a) Describe memory mapped I/O interfacing scheme and its advantages and disadvantages.
   b) Give meaning of control word of 8255.
   c) Explain operation of 8255 in mode 0 for input and output.
   d) Draw internal organization of DMA (8257) and interfacing with microprocessor.

OR

Explain with suitable diagram the handshake output mode of 8255.

4. a) Can RET instruction use in place of RETI instruction in ISR of 8051.
   b) What precaution must be taken while using stack in ISR or ordinary subroutine.
   c) Specify meaning of each bit of PSW, IP and IE registers of 8051.
   d) Draw internal organization of 8051 microcontroller and internal RAM of 8051.

OR

Write a program for 8051 microcontroller to create a square wave with 50% duty cycle on bit 0 of port 1. Assume frequency of square wave is 100 kHz and crystal frequency is 11.0592MHz.

5. a) Explain ADC and DAC.
   b) Define for 8051:
      i) TCON ii) SCON
   c) Write set of instruction of 8051 to configure timer 0 in mode 1 to generate a delay of one millisecond.
   d) Draw a connection diagram of RS232 with 8051 and explain configuration and communication over serial port.

OR

Explain interfacing of stepper motor with 8051 and write program to control stepper motor.

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