FACULTY OF ENGINEERING

BE 3/4 (CSE) I-Semester (Suppl.) Examination

May / June - 2007

Subject : Microprocessor Systems and Interfacing

Time : 3 hours]   [Max. Marks : 75

Answer **all** questions of Part -A and
any **Five** questions from Part -B

PART-A (25 marks)

1. What is PSW ? Explain the contents of PSW .

2. Write a procedure that produces a delay of 3.33 ms. when run on a 8086
    with 5MHz clock.

3. What are the ways of passing parameters to and from procedures ?
    Explain one method with an example.

4. Why is the 8086 memory setup as 2byte wide banks ? What logic levels
    would you find on $\overline{BHE}$ and A_O ? When 8086 is writing a byte to an
    address 04274H ?

5. Frame the control word of 8255 PPI for port A in mode '1', port 'B' in
    mode '1' output port. Specify the pins of port 'C'.

6. A terminal is transmitting asynchronous serial data at 1200 bands. What
    is the bit time ? Assuming 8- data bits, a parity bit and 1 stop bit. How
    long does it take to transmit one character ?

7. Write instructions to interchange contents of any two registers using stack.

8. Show how SYNDET /BD pin of 8251, PPI could be used with an example.

9. What entries would relocate a 1K length program at 33000H in real mode to 100100H in protected mode ?

10. What are the main features 80486 microprocessor ?

PART-B (50 marks)

11 (a) Explain the functions of the following pins in 8086.
   (i) $\overline{BHE}$ (ii) LOCK   (iii) MN/$\overline{MX}$ (iv) READY   (v) $\overline{TEST}$

   (b) Distinguish between minimum mode and maximum modes of operation of 8086.

12 (a) Briefly explain about the interrupt structure of 8086.

   (b) Compare the usage of procedures with macros in ALP .

13. Develop an 8086 ALP to find the LCM of two 16-bit. unsigned integers.

14. Explain the working of a 4 x 4 hexadecimal matrix key board interfaced through the parts of 8255. Give the Hardware and Software for it.

15. An 8086 system has a DMA controller 8257 interfaced such that address of its mode set register is F8H and address of its DMA address register of channel O is FOH. Write an ALP to read 2K bytes of data from location 5000H: 2000H in the system memory to a peripheral on channel of the DMA controller. Disable all other channels, Program TC stop, no autoload is required, fixed priority.

16. Describe how 8254 Timer could be used to count the pulses input for a period of time that is controlled by a second input. At the end of the overall counting time an interrupt request is to be made on IR2 line and after every 20 of the pulses being counted and Interrupt request is to be made on an IR3 line. Write a program sequence for initializing 8254.

17 (a) Explain the read Addressing mode and protected virtual addressing mode in 80286 microprocessor.

(b) Draw and explain the architecture of 80386 with the help of neat block diagram.