Registration No. : | | | | | | | | | | |

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B. Tech

PCEC 4301

Fifth Semester Examination – 2013

MICROPROCESSORS

BRANCH : EIE, ETC, BIOMED, EC, ICE, IEE, AEIE

QUESTION CODE : C- 389

Full Marks – 70

Time : 3 Hours

*Answer Question No. **1** which is compulsory and any **five** from the rest.*
The figures in the right-hand margin indicate marks.

1. Answer the following questions : 2×10

   (a) Write any two differences between minimum and maximum mode of 8086 microprocessor.

   (b) Write any two advantage of memory segmentation.

   (c) How much memory can 8086 directly address?

   (d) What are the predefined interrupts of 8086 microprocessor?

   (e) Which flag determines whether the address for a string operation is incremented or decremented ?

   (f) What is memory mapped I/O and I/O mapped I/O ?

   (g) Assume that the control register of an 82C55PPI is at address 0103h. Write an instruction sequence to set PC3 bit of Port-C in BSR mode.

   (h) What is baud rate ? How it is related with BIT TIME ?

   (i) What is SHORT type jump ? Give instruction example for it.

P.T.O.

(j) What is the difference between the following two instructions ?

MOV AX, ARRAY_ADDR

LEA AX, ARRAY_ADDR.

2. (a) Write any five differences between 8086 and 8088 microprocessor. 5

(b) Draw and explain the Memory read bus cycle of 8086 microprocessor in minimum mode. 5

3. (a) How is the memory of 8086 microprocessor organized from a hardware point of view ? 5

(b) Suppose DS = 8888h, ES = 2345H, CS = 789AH, SS = F123H, BX = 1234, BP = 3333, SI = F000H, DI = 2222H. What physical addresses are accessed by the following instructions of 8086 microprocessor ? 5

MOV AH, [BX + SI + 10H]

MOV BH, [BP]

MOV CX, CS: [SI]

XOR AL, [DI + 1111h]

ADD [2000h], BL

4. Write an 8086 assembly language program to find the largest number from the array of data bytes. Draw the flow chart which supports to your program. 10

5. (a) What is 8254 ? Explain about any three modes of 8254 with suitable diagram. 6

(b) An 82C54 receives the control word 10010000_2 What configuration is set up for the timer ? 4

6. (a) What is DMAC ? What are the user accessible register in the 8237 DMAC ? Explain about the mode register format of the same. 5

(b) Write a program to generate a square wave of frequency 2KHz at PC 4 bit of Port-C in mode 0 I/O mode for 8255PPI. 5

7. (a) Draw the block diagram of 8251A USART and explain the receiver and transmitter section of it. 5

(b) What value must be written into the mode-control register in order to configure the 8251A such that it works as an asynchronous communication controller with baud rate clock internally divided by 64? Character size is to be 8-bits, parity is odd and one stop bit is used. 5

8. Write short notes on any **two** of the following : 5×2

(a) 8288 bus controller

(b) Key board and display controller

(c) 8086 maximum mode signals

(d) String instructions of 8086 microprocessor.