Reg. No. : ....

Name : ....

Fifth Semester B.Tech. Degree Examination, December 2016
(2013 Scheme)
13.505 : MICROPROCESSORS AND INTERFACING (R)

Time : 3 Hours   Max. Marks : 100

PART – A

Answer **all** questions. **Each** question carries **4** marks.

1. Explain the following 8085 microprocessor instructions
   a) LDAX Rp   b) OUT 8bit

2. Explain the following addressing modes of 8085 with suitable examples
   a) Register indirect addressing
   b) Implicit addressing.

3. Explain the flag register of 8086 processor.

4. Write an 8086 based assembly language program to find the average of two bytes of data.

5. Give the control word format of 8254 chip.

PART – B

Answer **any one** question from **each** Module.

Module – I

6. a) Explain the following 8085 microprocessor signals
      i) TRAP   ii) HOLD
      iii) SOD   iv) ALE
      v) $\overline{\text{RESETIN}}$ 10

   b) With suitable diagram, explain how address bus, data bus and different control signals are generated in 8085 microprocessor based system.   10

OR

7. a) Explain the different registers available in 8085 microprocessor. **10**

   b) Give an interfacing circuitry to interface 2K bytes of EPROM and 1K byte of RAM to the 8085 microprocessor. Use 1 no. of 2716 EPROM chip and two numbers of 2142 RAM chip. Give the address map of your design. **10**

Module – II

8. a) With a neat diagram, explain the architecture of 8086 processor. **12**

   b) Explain the physical memory organization in 8086 based system. **8**

OR

9. a) Describe the functions of 8086 queue. How does the queue speed up processing ? **8**

   b) Draw the timing diagram of opcode fetch machine cycle of 8085 microprocessor. Explain the activities in each T state. **12**

Module – III

10. a) Write an assembly language program to find out the number of positive and negative numbers from a given series of signed numbers. **10**

    b) Explain the following assembler directives **10**
       i) ASSUME   ii) DB   iii) ENDS
       iv) ORG   v) OFFSET

OR

11. a) Write an assembly language program to find the largest number among a set of unordered bytes, stored in location starting from a known address. **10**

    b) Explain the physical address formation in different addressing modes of 8086 processor. **10**

Module – IV

12. a) Draw and explain the block diagram of 8255 programmable parallel port device. **10**

    b) Give an interfacing circuit to interface 8254 chip with 8086 processor. Determine the base address for the chip, the counters and control word register. **10**

OR

13. a) Draw and explain the architecture of 8237 DMA controller. **10**

    b) Explain the control word format of 8255 chip. If you want to initialize 8255 as Port A in mode 0 – Output port, Port B as mode 1 – Input port, port C_{upper} as input port and port C bit 3 as output, give the mode set control word and BSR control word. **10**

———————————