(Pages : 2) **3312**

Reg. No. : .....

Name : .....

Fourth Semester B.Tech. Degree Examination, May 2015
(2013 Scheme)
13.402 : COMPUTER ORGANIZATION AND DESIGN (FR)

Time : 3 Hours Max. Marks : 100

PART – A

Answer **all** questions, **each** question carries **4** marks.

1. Compare big endian addressing with little endian addressing.
2. Discuss about :
   a) Autoincrement addressing mode
   b) Autodecrement addressing mode
3. Write short note on interrupt nesting.
4. What are the advantages of DMA Controller in a computer system ?
5. With a neat sketch explain the working of PLA.

PART – B

Answer **one full** question from **each** Module, **each full** question carries **20** marks.

Module – I

6. a) Explain in detail the subroutine linkage method.
   b) The subroutine call instruction of a computer saves the return address in a processor register called RL. What would you do to allow subroutine nesting ? Would your scheme allow the subroutine to call itself ?
7. a) Write the sequence of steps need to fetch execute the instruction
   ADD (R1) +, R5.
   b) Register R1 and R2 of a computer contains the decimal values 1000 and 3600. What is the effective address of the memory operand in each of the following instruction :
      a) Load 20(R1), R5
      b) Move (R1) +, R5
      c) Add – (R2), R5

P.T.O.

Module – II

8. a) Discuss about arithmetic, logic and shift microoperations.

   b) Design an arithmetic circuit that multiplies two fixed point binary numbers in sign magnitude representation.

9. a) Explain in detail the working of a processor unit employing a scratch pad memory.

   b) Design a logical circuit for implementing logical operations.

Module – III

10. a) Describe the control logic with one flip flop per state method.

    b) Design a hardwired control unit for performing addition of two fixed point binary numbers in sign magnitude form.

11. a) With a neat sketch explain the organization of a microprogram sequencer.

    b) Compare hardwired control unit with microprogrammed control unit.

Module – IV

12. a) Explain in detail the working of PCI interface.

    b) With a neat sketch explain the working principle of DMA controller.

13. a) Explain the characteristics and applications of ROM, PROM, EPROM, EEPROM.

    b) Compare and contrast Synchronous and Asynchronous RAM.
