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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.

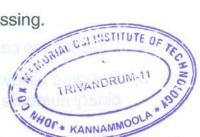
- 2. Discuss about :
 - a) Autoincrement addressing mode
 - b) Autodecrement addressing mode
- 3. Write short note on interrupt nesting.
- 4. What are the advantages of DMA Controller in a computer system?
- 5. With a neat sketch explain the working of PLA.

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





Module - II

- 8. a) Discuss about arithmetic, logic and shift microoperations.
 - 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.
 - 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.
- a) Explain the characteristics and applications of ROM, PROM, EPROM, EEPROM.
 - b) Compare and contrast Synchronous and Asynchronous RAM.