CSE301 Enrol. No. .....

[ETD]

END SEMESTER EXAMINATION : NOV.–DEC., 2015

COMPUTER ORGANIZATION AND ARCHITECTURE

Time : 3 Hrs. *Maximum Marks : 70*

Note: ***Attempt questions from all sections as directed.***

SECTION – A (30 Marks)

Attempt any **five** *questions out of* **six**.

Each question carries **06** *marks.*

1. What are registers ? Mention various types of Registers and explain any two.

2. Explain the principle of pipelining with the help of space time diagram. Derive an expression for speed up.

3. What is the difference between logical, circular and arithmetic shift ? Starting from an initial value of R = 11011101, determine the sequence of binary values

P.T.O.

in R after a logical shift-left, followed by a circular shift-right, followed by a logical shift-right and circular shift-left.

4. Explain with the help of flow diagram how an instruction is fetched, decoded and executed ?

5. Register A holds the 8-bit binary 11111001. Determine operand B and the logic micro operation to performed in order to change the value in A to :

   (i) 01101111

   (ii) 11011101

6. Draw and explain the instruction cycle and the control functions associated with each of the phases. Show the execute phase for any one memory reference instruction.

SECTION – B (20 Marks)

Attempt any **two** *questions out of* **three**.

Each question carries **10** *marks.*

7. (a) What are the various techniques for data transformation from main memory to Cache memory ? (5)

(b) Explain the memory hierarchy in the computer system. What is its need? What is the reason for not having a large enough main memory for storing the totality of information in a computer system? (5)

8. (a) What are buses? Discuss bus arbitration scheme? (5)

(b) What is an interrupt? Explain the difference between types of interrupts in detail. (5)

9. What is cache coherence problem in microprocessor system? How can it be solved? Explain in detail.

SECTION – C (20 Marks)

(Compulsory)

10. (a) Explain flow chart of Booth's multiplication algorithm in detail. Also compute 7X(–8) using Booth's Algo. (10)

(b) Describe one address, two address instruction format with the help of examples. Discuss

register direct, register indirect and indexed addressing modes along with their merits & demerits ? (10)

****