ANNA UNIVERSITY COIMBATORE

B.E. / B.TECH. DEGREE EXAMINATIONS : SEPTEMBER 2009

REGULATIONS - 2007

THIRD SEMESTER

070230011 – COMPUTER ARCHITECTURE

(COMMON TO CSE / IT)

TIME : 3 Hours **Max.Marks : 100**

PART – A

(20 x 2 = 40 MARKS)

ANSWER ALL QUESTIONS

1. Why data bus is bidirectional and address bus is unidirectional in most microprocessor?
2. What are limitations of assembly language?
3. What is the information conveyed by the addressing modes?
4. List the various instructions format.
5. Differentiate stack and queue.
6. What is byte addressable memory?. What are the two ways of assigning the byte address across words?.
7. Registers R1 and R2 of a computer contain the decimal values 1200 and 4600. what is the effective address of the memory operand in each of the following instruction.
   a. LOAD 20(R1), R5
   b. STORE R5, 30(R1,R2)
8. What are the various ways of representing signed integers in the system?.
9. Why floating point number is more difficult to represent and process than integer?
10. Represent the number -10 as signed and 1's complement.
11. State the difference between hardwired and micro programmed control unit.
12. What is pipelining?

13. Define straight line sequencing?
14. Name the registers used to communicate with the memory?.
15. What is virtual memory?
16. Why does DMA have priority over the CPU when both request a memory transfer?
17. What is the difference between subroutine and interrupt service routine?.
18. What is the advantage of using interrupt initiated data transfer over transfer under program control without interrupt?
19. What do you mean by cycle stealing?
20. What is the use of bus arbitration?

PART – B

(5 x 12 = 60 MARKS)

ANSWER ANY FIVE QUESTIONS

21. List the addressing modes. Give a brief explanation of any five of them with an example.

22. a) Explain how the processor is interfaced with the memory with a neat block diagram and explain how they communicate? 8
    b) What do you know about bit, byte, nibble and word? 4

23. a) Design a 4-bit carry – look ahead adder and explain its operation with an example. 8
    b) Write short notes on floating point numbers. 4

24. a) Draw the circuit for integer division and explain. 6
    b) Explain multiple bus organization in detail. 6

25. Explain how the performance of the instruction pipeline can be improved.

26. What is virtual memory? Explain how the logical address is translated into physical address in the virtual memory system with a neat diagram.

27. a) Explain briefly RAID Disk arrays 6
    b) Explain ROM technologies 6

28. a) Explain how I/O devices can be interfaced with a block diagram. 8
    b) Write short notes on PCI. 4

*****THE END*****