TRIBHUVAN UNIVERSITY
FACULTY OF MANAGEMENT
Office of the Dean
2016

Full Marks: 40
Time: 2 hrs.

BIM / Third Semester / IT 217: Computer Organization

Candidates are required to answer all the questions in their own words as far as practicable.

Group "A"

Brief Answer Questions: [10 × 1 = 10]

1. What is the importance of complement in digital computers?
2. What is the register value of A after arithmetic right shift if A=10011100?
3. What is the purpose of location counter in assembler?
4. How many bits are required to address 4096bytes of memory?
5. What is the meaning of dynamic microprogramming?
6. What is the purpose of strobe pulse in asynchronous data transfer?
7. Write the major difficulties that cause the instruction pipeline to deviate from normal operation.
8. What is the principle behind the implementation of cache memory?
9. What is the function of IOP?
10. What is critical section?

Group "B"

Exercise Problems: [5 × 4 = 20]

11. The 8-bit registers AR,BR,CR and DR initially have following values:

    AR =11110010, BR=11111111, CR=10011001, DR=11101010
    Determine the 8-bit value in each register after the execution of the following sequence of micro operations :
    AR ← AR+BR
    CR ← CR V DR , BR ← BR+1
    AR ← AR + CR , DR ← DR+1

12. Perform the operation (-19) × (+21) by using signed magnitude multiplication algorithm.

13. Write a program loop , using a pointer and counter , that clears the content of hexadecimal locations 500 through 5FF to 0.

14. Consider the following figure :

    PC =300
    R1= 500

    What is the value in AC if the instruction is

    LDA 300 if the modes are:

    i.   Direct addressing
    ii.   immediate
    iii. Indirect addressing
    iv.   Register indirect if LDA (R1) is used

Address	Memory
300	450
⋮	⋮
450	200
500	100

15. What is associative memory? Given a cache memory with access time 200ns and RAM with access time 2000 ns, if hit ratio is 90% calculate the average memory access time.

Group "C"

Comprehensive Answer Questions:

[2 × 5 = 10]

16. What is the advantage of common bus system? Explain with diagram. What is vector processing?

17. How are priorities of interrupt handled? What do you mean by instruction set completeness?

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