

PAPER ID : 1067

TCS-401/TIT-401

Printed Pages : 3

Paper ID and Roll No. to be filled in your Answer Book

Roll No.

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B.Tech.

3

(SEM. IV) EXAMINATION, 2011

COMPUTER ORGANIZATION

Time : 3 Hours]

[Total Marks : 100

Note : Attempt all questions.

Attempt any two parts of the following : 10×2

- (a) Register A holds the 8-bit binary 11011001. Determine the B operand and the logic microoperation to be performed in order to change the value in A to :-
- (i) 01101101
 - (ii) 11111101.
- (b) Find the expression for generation of carry-in four-bit carry-look ahead adder. Also draw its logic diagram.
- (c) Explain the following with reference to floating point representation :
- (i) IEEE standard.
 - (ii) Normalization
 - (iii) Overflow and underflow.

2 Attempt any two parts of the following : 10×2

- (a) What do you mean by bus organization ? Explain multiple bus organization.

- (b) Explain wide-branch addressing and emulation.
- (c) Explain micro-instruction format. Describe horizontal and vertical micro-instructions.

3 Attempt any two parts of the following : 10×2

- (a) A general register organization has 16 registers with 32 bits in each ALU and a destination decoder :
 - (i) How many multiplexers are there in the A bus and what is the size of each multiplexer ?
 - (ii) How many selection input are needed for MUX A and MUX B ?
- (b) Write programs to evaluate the arithmetic expression $A*B+A*(B*D+C*E)$ for two address and zero address machines.
- (c) Describe various schemes for resolving priority of interrupts from multiple IO devices.

4 Attempt any two parts of the following : 10×2

- (a) Discuss static and Dynamic RAM. Explain 2D and $2\frac{1}{2}$ D RAM organizations with their merits and demerits.
- (b) Consider a memory with following parameters :
 - $T_C = 100 \text{ ns}$
 - $T_m = 1500 \text{ ns}$
 - $H = 0.9$
 Calculate the average access time of the system.
- (c) Discuss the concept of virtual memory.

5 Attempt any two parts of the following : 10×2

- (a) Discuss in brief about parallel computer architecture.
- (b) Draw a timing diagram for a six-stage pipeline showing how it would process eight tasks.
- (c) Describe vector processor and array processor. Also explain their similarities and differences.