

24082

Printed Pages - 3

ECS - 401

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

PAPER ID: 0110 Roll No.

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B.Tech.

(SEM IV) EVEN SEMESTER THEORY EXAMINATION,
2009-2010

COMPUTER ORGANIZATION

Time : 3 Hours

Total Marks : 100

Note : (i) Attempt ALL questions.

(ii) All questions carry equal marks.

1. Attempt any four parts : (4x5=20)
- (a) What is sequential circuit ? Explain the block diagram of synchronous sequential circuit.
 - (b) Discuss the digital computer generation in brief.
 - (c) Define bus arbitration with suitable diagram.
 - (d) What do you mean by error detection and correction code ? Explain parity bit concept for above.
 - (e) Differentiate between fixed point representation and floating point representation. Explain with suitable examples.

(f) Convert the following decimal numbers to the bases indicated :

- (i) 7625 to octal
- (ii) 1983 to Hexadecimal
- (iii) 174.5 to Binary
- (iv) 6279 to octal
- (v) 3001 to Hexadecimal

2. Attempt any four parts : (4x5=20)

- (a) What is stack organization ? Compare Register stack and Memory stack.
- (b) Explain addressing modes. Define the role of programme counter in addressing mode.
- (c) What is CISC ? Explain it with its characteristics.
- (d) What is the radix of number if the solution to the quadratic equation :
 $x^2 - 10x + 31 = 0$
is $x = 5$ and $x = 8$.
- (e) Show the multiplication process using Booth's algorithm when the following numbers are multiplied :
 $(-12) * (-18)$
- (f) Show the block diagram of the hardware that implements the following register transfer statements.

$y T_2 : R_2 \leftarrow R_1, R_1 \leftarrow R_2.$

3. Attempt any two parts : (2x10=20)

- (a) What is Microinstruction ? How is it different from microprogram sequence ? Explain with the help of example.
- (b) An encoded microinstruction format is to be used. Show how a 9 - bit microoperation field can be divided into sub-fields to specify 46 different actions.
- (c) How a processor execute instructions ? Define the internal functional units of a processor and how they are interconnected ?

4. Attempt any two parts : (2x10=20)

- (a) What are semiconductor RAM memories ? Show the read operation and write operation in static memories with examples.
- (b) Explain the concept of Virtual memory. How address mapping is performed in virtual memory ?
- (c) What is difference between 2D and $2\frac{1}{2}$ D memory organization ? Explain it with the help of suitable examples.

5. Attempt any two parts. (Write the short notes) :

- (a) Direct Memory Access (DMA). (2x10=20)
- (b) Synchronous and Asynchronous communication.
- (c) Interrupts with their types and exceptions.

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