Roll No. _____ Total Pages : 2

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BT-5/D07

COMPUTER HARDWARE DESIGN

PAPER - ECE-303E

Time : 3 Hrs. Maximum Marks : 100

Note : Attempt any five questions.

1. Describe in brief the following terms :
   a. Register Transfer Language
   b. Micro-operation
   c. Registers
   d. Register Transfer
   e. Control Function 20

2. a. Find the solution of the given expression using Booth's algorithm (in tabular form) :
   (+15) x (+13) 10
   b. Perform the following operations using 2's complement representation :
   i. (-53) + (+27)
   ii. (-53) - (+27) 10

3. Explain the following types of memory :
   a. Cache memory
   b. Associative memory 20

4. a. Write short notes on :
   i. Cross bar network

ii. Hypercube network

iii. Tree network 10

b. Write short note on 'Pipelining" 10

5. a. Write short notes on :

i. Subroutine

ii. Macros

iii. Tristate Buffer 12

b. Explain Program Interrupt and its operation with diagram. 8

6. a. Write short notes on :

i. Hardwired control

ii. Microprogram control 10

b. Describe the microinstruction format for the control memory. 10

7. a. Assume we have a machine where the cycles per instruction is 2.0 when all memory accesses hit in the cache. The only data acesses are loads and stores and these total 40% of the instruction. If the miss penalty is 25 clockcycles and miss rate is 2%, how much faster would the machine be if all instructions were cache hits? 10

b. Write short note on Magnetic Disc Memories 10

8. Describe in detail the different types of modes of data transfer. 20

different modes of their propagation ? Explain ground waves. 15

b. What waves are used for intercontinental communication? Why ? 5

8. a. How does ionosphere limits the communication to outer space ? 5

b. Write short notes on the following :

i. Maximum usable frequency

ii. Skip distance

iii. Critical frequency 15