

Roll No.

Total Pages : 03

BT-5/D-14

8506

COMPUTER HARDWARE DESIGN

ECE-303-E

Time : Three Hours]

[Maximum Marks : 100

Note : Attempt *Five* questions in all, selecting at least *one* question from each Unit. All questions carry equal marks.

Unit I

1. What do you understand by addressing modes ? What are the factors motivating the use of different addressing modes ? Discuss the following addressing modes using suitable examples :
 - (a) Immediate Addressing Modes
 - (b) Indexed with Based addressing mode.
2. What is Instruction Format ? What is the difference between zero-address and one-address instruction format ? Explain.

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P.T.O.

Represent the Decimal number 492 in :

- (a) BCD code
- (b) Excess-3 code
- (c) 8, 4, 2, -1
- (d) Binary number.

Unit II

3. (a) Define the following terms :
 - (i) Micro Instruction
 - (ii) Micro Program
 - (iii) Micro Operation.
- (b) Discuss the design of a BCD Adder.
4. (a) What is SIMD technique ? What is array processor ? Explain.
- (b) What is the difference between hard-wired control and micro program control ? What are the advantages and disadvantages of each method ? <http://www.kuonline.in>

Unit III

5. (a) What is the difference between optical and magnetic storage devices ? Explain the concepts of cylinder, track, sector, seek time, latency time and transfer time in respect to a hard disk.

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- (b) What do you understand by locality of reference ? Discuss in context of cache memory.
6. (a) Design a 2D RAM consisting of 32 locations and each location of 8 bits and also explain its working.
- (b) What do you understand by memory interleaving ? How does it help in alleviating the speed mismatch between the memory and processor ? Discuss.

Unit IV

7. (a) What is Hypercube Networks ? Explain.
- (b) What is Daisy Chain ? What is Polling ? Explain.
8. What is Instruction Pipelining ? What are the design considerations ? What are its limitations ? Explain.