

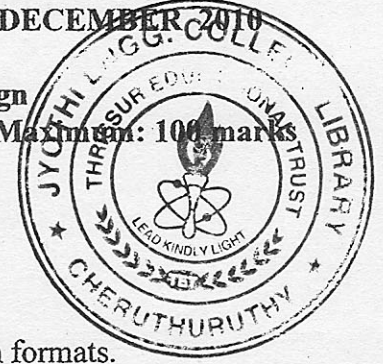
## FOURTH SEMESTER B.TECH. DEGREE EXAMINATION, DECEMBER 2010

## CS.04.405 – Computer Organization and Design

Time: Three hours

Maximum: 100 marks

(Answer all questions)



- I. a. Write a note on computer abstraction.  
 b. Explain any one decision making instruction.  
 c. With block diagram explain the working of a serial adder.  
 d. Represent  $1259.125_{10}$  in single precision and double precision formats.  
 e. What is a micro operation? Compare Micro and Macro operations with suitable examples.  
 f. What are exceptions? Explain.  
 g. With block diagram explain the memory hierarchy.  
 h. What are the five major differences between central computer and peripherals that are to be resolved by an I/O interface?

(8x5=40 marks)

- II. a. (i) What are bench marks? What is a synthetic benchmark? (5 marks)  
 (ii) Discuss the SPEC95 benchmark ratings in detail. (10 marks)

OR

- b. Discuss the various types of 8086 instruction sets with suitable examples. (15 marks)

- III. a. Draw the flow chart and block diagram for floating point addition and subtraction. Also explain its operation in detail. (15 marks)

OR

- b. Explain Booth's algorithm to multiply the following pair of signed two's complement numbers:  
 A = 110011 multiplicand  
 B = 101100 multiplier  
 Also implement the above using Bit-pair recording and explain how it achieves faster multiplication. (15 marks)

- IV. a. (i) With block diagram explain the operation of a data path unit and control unit. (7 marks)

- (ii) Explain the implementation methods of Multicycle operations. (8 marks)

OR

- b. With block diagram explain the features and functions of a Pentium processor. (15 marks)

- V. a. (i) What is a cache memory? Explain. (3 marks)

- (ii) What are the three types of mapping procedures used for Cache Memory Organization? Explain with suitable examples. (12 marks)

OR

- b. (i) What is a virtual memory? Explain. (6 marks)

- (ii) Explain the following modes of data transfer between central computer and peripherals:

Data transfer under program control

Interrupt initiated data transfer

Direct memory access (DMA) transfer.

(9 marks)

(4x15=60 marks)

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