

## ***B.Tech. Degree III Semester Examination, November 2009***

### **IT 306 COMPUTER ORGANIZATION**

Time: 3 Hours

Maximum Marks: 100

#### **PART – A**

(Answer ALL questions)

(8 x 5 = 40)

- I. (a) What is a stack? Explain the stack operations and uses with examples.  
(b) Define the following:  
(i) Assembler (ii) Compiler (iii) Loader (iv) Debugger  
(c) With suitable example write down the procedure for fetching a word from memory and storing a word in memory with suitable examples.  
(d) Explain Booth algorithm with an example.  
(e) Describe LRU replacement algorithm steps with all the possible conditions.  
(f) Explain how you can improve the performance of the main memory using interleaving techniques.  
(g) Write down the sequence of events involved in handling an interrupt request from a single device.  
(h) Differentiate between memory mapping I/O and isolated I/O.

#### **PART – B**

(4 x 15 = 60)

- II. What are addressing modes? Explain with examples the commonly used addressing modes in general purpose computers. (15)
- OR**
- III. (a) List the different types of registers within a processor and explain their functions with suitable diagrams. (10)  
(b) What are assembler directives? Explain the functions of the following directives.  
(i) EQU (ii) ORIGIN (iii) RESERVE (5)
- IV. Write down the two integers division algorithms. Explain both with suitable example and draw the logic circuit arrangement used to implement it. (15)
- OR**
- V. (a) Draw and explain the hard wired control unit organization. (9)  
(b) Outline the general procedures for addition, subtraction, multiplication and division of floating point numbers. (6)
- VI. What is memory mapping? Explain three mapping techniques used in cache memory with neat diagrams also specify their advantages and disadvantages. (15)
- OR**
- VII. Explain the organization, storage mechanism and accessing of data on a Magnetic Hard Disc. Also explain the functions of Hard Disc controller. (15)
- VIII. Describe different synchronous and asynchronous data transfer schemes. (15)
- OR**
- IX. Describe direct memory access (DMA) and different modes of operations. (15)

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