

1079  
B.E. (Electronics and Communication Engineering)  
Seventh Semester  
Elective – IV  
EC-704: Computer Architecture and Organization

Time allowed: 3 Hours

Max. Marks: 50

*NOTE: Attempt five questions in all, including Question No. 1 which is compulsory and selecting two questions from each Unit.*

x-x-x

I. Answer the following:-

- a) List the operations for an instruction pipeline.
- b) Differentiate between internal, external and software interrupts.
- c) What is the mapping procedures adopted in the organization of a cache memory?
- d) What is a carry look-ahead adder?
- e) Differentiate between BUN and BSA. (5x2)

UNIT – I

- II. a) Design a 4 bit combinational circuit shifter.  
b) Design a 4-bit adder-subtractor circuit. (2x5)

- III. a) Show the complete logic of the interrupt flip flop R in the basic computer. Use a JK flip flop and minimize the number of gates.  
b) Derive the control gates associated with program counter in the basic computer. (2x5)

- IV. a) Write a program to subtract two double precision numbers.  
b) Compare stack organization with general register organization. (2x5)

UNIT – II

- V. a) Show step by step multiplication process using Booth algorithm when the following binary numbers are multiplied. Assume 5 bit registers that hold signed numbers (+15)x(-13).

- b) Differentiate between comparison and non-restoring method of fixed point binary division. (2x5)

- VI. a) Briefly explain various types of mapping procedure for cache memory.  
b) Explain the concept of virtual memory. (2x5)

VII. Write notes on the following:-

- a) Memory Management Hardware (2x5)
- b) Asynchronous Data Transfer

x-x-x