

2123
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. Draw the block diagrams and wave forms wherever required.

x-x-x

I. Attempt the following:-

- a) Establish the distinction between computer organization and computer architecture.
- b) Give the major characteristics of RISC and CISC architectures.
- c) List and define the possible states that define an instruction execution.
- d) What is a Subroutine? Give Example.
- e) For a direct-mapped cache, a main memory address is viewed as consisting of three fields. List and define the three fields.
- f) What is parallel processing?
- g) What is the difference between software and hardware cache coherent schemes?
- h) Write an application of Memory management Hardware.
- i) What is the use of pipelining and superscalar operations?
- j) What is the advantage of DMA? (10x2)

UNIT - I

- II. a) List and briefly define some of the techniques used in contemporary processors to increase speed.
- b) Explain the importance of instruction set in measuring the performance of a computer system. (5+5)
- III. a) Write about various means by which data are transferred between memory of a computer and outside world.
- b) Write the subroutines for parameter passing through registers. (5+5)

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- IV. Give an overview of the basic functional units and bus structures of a computer. Discuss the generations of computers based on the development technologies used to fabricate the processors, memories and I/O units. (4+6)

UNIT - II

- V. a) What is the difference between a microprocessor and micro program? Is it possible to design a microprocessor?
b) Explain, how address sequencing is done in a micro programmed control unit? (5+5)
- VI. Derive speedup achieved by a pipeline unit over a non-pipeline unit. What are the pipeline conflicts that cause the instruction pipeline to deviate from? (4+6)
- VII. Write notes on the following
a) Virtual memory
b) Pentium Memory Management. (5+5)

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