AMIT-05 COMPUTER ARCHITECTURE

UNIT-1 BASIC STRUCTURE OF COMPUTERS

1.1 Functional units, Basic operational concepts, Bus structures,

1.2 Instructions & instruction sequencing.

1.3 Hardware and software, Addressing modes,

1.4 Assembly language, Stacks &Subroutines

UNIT-2 PROCESSING UNIT

2.1 Fundamental concepts,

2.2 Execution of a complete instruction,

2.3 Hardwired control unit,

2.4 Micro programmed control, and control signals,

2.5 Microinstructions, micro program sequencing

2.6 Branch address modification,

2.7 Pre-fetching of micro instructions, Emulation.

2.8 Computer arithmetic, logic design for fast adders,

2.9 Multiplication, Booth's algorithm,

2.10   Fast multiplication, integer division

2.11   Floating point numbers and operations.

UNIT-3 MEMORY ORGANIZATION

3.1 Semiconductor RAM memories,

3.2 Internal organization of memory chips

3.3 Static and Dynamic memories, cache memories, mapping functions,

3.4 Replacement algorithms virtual memory, address translations,

3.5 Performance considerations, interleaving,

3.6 Secondary storage.

UNIT-4 INPUT-OUTPUT ORGANIZATIONS

4.1 Interrupts, Enabling & Disabling interrupts,

4.2 Handling multiple devices,

4.3 Device identification vectored interrupts, interrupt nesting

4.4 Simultaneous requests, DMA, Buses,

4.5 I/O interface circuits, Standard I/O interfaces.

References Books:

1. Hamacher C. V., "Computer Organisation – International Edition -5th Edition", Mc.Graw Hill, NewYork
2. Stallings William, "Computer Organization and Architecture Designing for Performance",8th Edition, Pearson Education ,2003
3. Pal Chaudhary P, "Computer Organisation and Design " , Prentice Hall, New Delhi,
4. Hayes J P , "Computer Organisation and Architecture - 2nd Edition ", Mc Graw Hill,