VICTORIA UNIVERSITY BANGLADESH

Assignment On

Course Name : Computer Architecture

Course code : CSE-313

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Cource: CSE-313 / Computer Architecture.

Answer to the question No: 3(a)

(a) Finite state machines (FSMs) are at the heart of most Digital Design. The Basic Idea of a FSM is to stone a sequence of Different unique states and transition between them depending on the values of the input ~~transition between~~ and the current state of the machin. The FSM can be at two types:
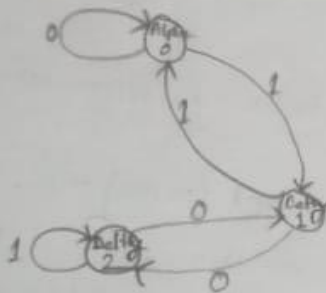
More (where the output of the state machine purely dependent on the state variables) and mealy (where the output can depend on the current state variable values and the input values).

Answer to the question No: 3(b)

b/ Fini state machine - moot-3
* System state is explicit in representation.
* Transitions between states representation as arrows with input on ares.
* output may be either part of state or on ares.
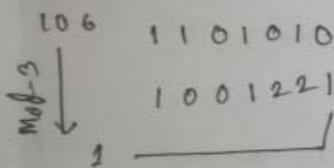
Mod 3 machine:

Input as MSB (First):

$$\text{Mod-3} \downarrow \quad \begin{array}{l} 106 \quad 1\ 1\ 0\ 1\ 0\ 1\ 0 \\ \quad\quad 1\ 0\ 0\ 1\ 2\ 2\ 1 \\ 1 \underline{} \end{array}$$

Fig. mod-3 machin.

ⓐ Faundemental Execution cycle:

- Instruction Fetch — obtain instruction from program storage
- Instruction Decode — Determine required atactions and Instruction size
- Operand Fetch — Locate and obtain operand data
- Execute — Computer result value or status.
- Result store — Deposit results value or status in storage for later use
- Next Instruction — Determine successor instruction.
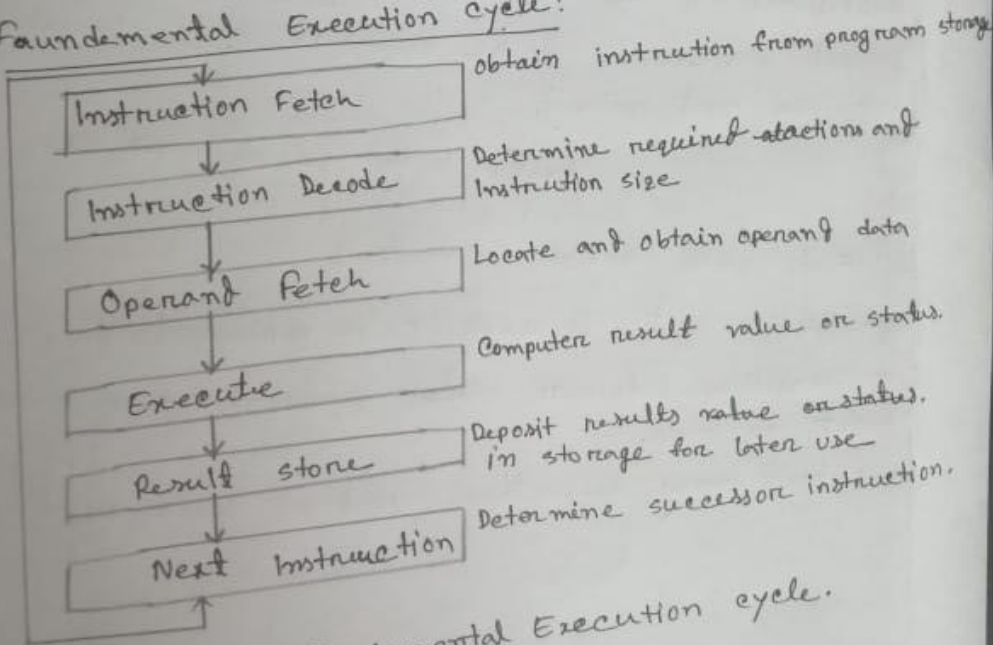
Fig - Fundamental Execution cycle.

Answer to the question NO:4(b)

(b) Levels of the Memory Hierarchy:

Capacity
Access Time
cost

CPU Registers
100s Bytes <<1s ns

Cache
10s - 100s k Bytes
~1 ns
$ 1s/MByte

Main memory
MBytes
100 ns- 300 ns
$ <1/mByte

Disk
10s G Bytes, 10 ms
(10,000,000 ns)
$ 0.001/mBytes

Tape
infinite
Sec- min
$ 0.0014/mByte.

Registers

instr: operands

Cache

Blocks

Memory

pages

Disk

Files

Tape

Staging
Xfer Unit

prog/compiler
1-8 bytes

cach cntl
8 - 128 bytes

OS
512-4k bytes

user/operator
mbytes.

faster

Larger

Lower Level

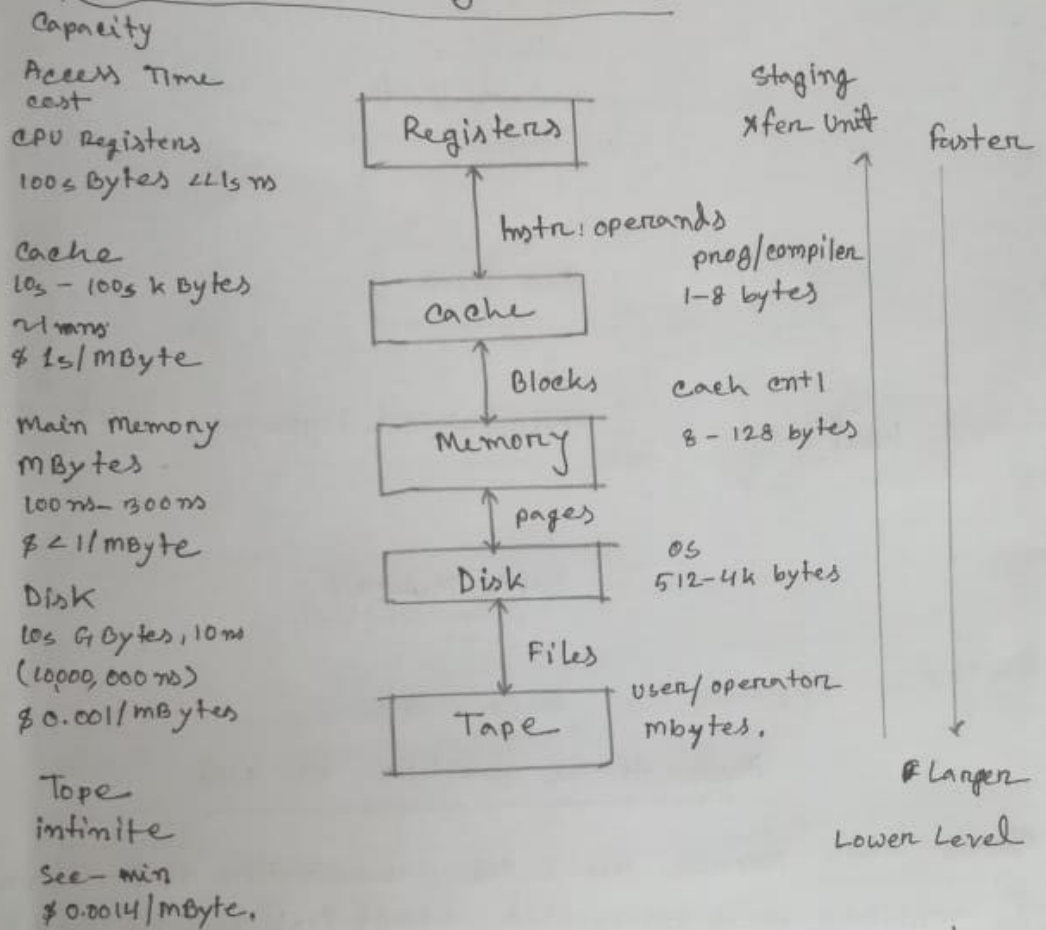Fig: Levels of the Memory Hierarchy.

Answer to the question NO: 1(a)

Computer Architecture: Computer Architecture can be
defined as a set of rules and methods ta that describe the
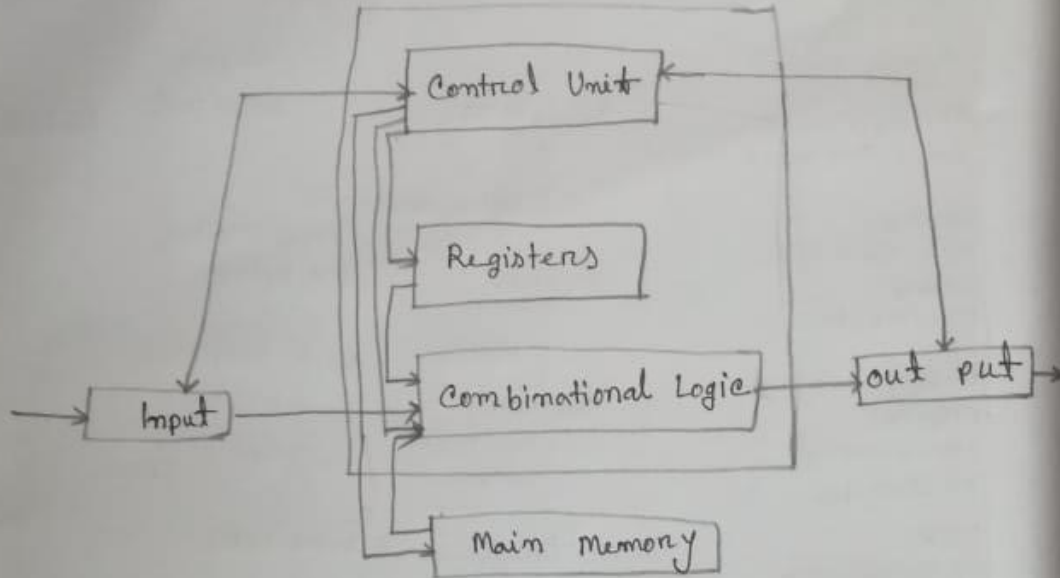functionality.

The ~~Is~~ Basic ~~of~~ Diagram:

Fig: Computer Architecture

Answer to the question no: 1(b)

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Moore's Law: Moore's law is the observation that the number of transistors in an integrated circuit (IC) doubles about every to two years.