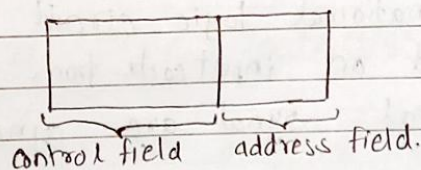Assignment 3
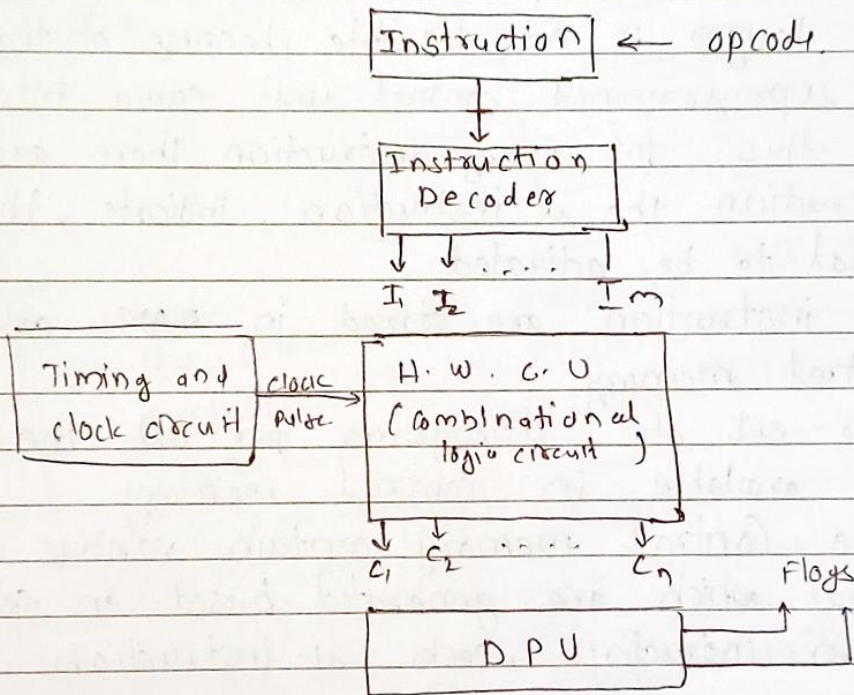
1. Explain microprogram control unit and give microinstruction format

⇒ ① With large No. of instruction the hardware control unit becomes complicated, more over the hard wired design is not flexible, because of these limitation the µ programmed control unit came into existance.

② In this for every instruction there are µ instruction the µ instruction, indicate, the control signal to be activated

③ µ instruction are stored in RAM called as control memory

④ The set of µ program for all the struction are available in control memory

⑤ The Control memory contain various control signal which are generated based on selection of micro – instruction, each µ-instruction has two par

   control field   address field.

⑥ Control field specifies the control signal to be activated

⑦ Address field specifies address of the next, µ instructions

2. Explain hardwired control unit and give it's type

⇒ ① In the design the combinational logic circuit is used to generate the control signals.

②→ The combinational logic circuit generates the signal based on input code from instruction decoder

③→ The control signal are syncronized w.r.t input clock.

④→ HDCU is faster than µ programed CU

⑤→ It is not possible (almost) to make changes in HW CU

⑥→ Types of Hard wired control unit

    ⑥.①→ State stable method.

    ⑥.②→ Delay element method.

    ⑥.③→ Sequence counter method.

3. Explain Flynn's classification

⇒

① → The classification made by M.J plyn divides computer into 4 major groups based on the values of instruction stream and data stream

Following are these 4 groups

A) S I SD
→ It stands for single Instruction stream and single Data stream
→ It has only single stream for Data and instruction transfer each.

B] S I M D
→ It stand for single Instruction stream and multiple Data stream
→ Here Instruction has only one stream but data has multiple stream

C] M I SD
→ It stand for Multi instruction stream and single Data stream
→ Here Data stream is single but instruction streams are Multiple.

D] M I M D
→ It stand for Multiple instruction stream and multiple Data stream