**Date: 26-04-2021**

**Branch: CSE (III Year) and EE (III Year)**

**Topic:** Design of Basic computer and Design of Accumulator Unit.

**Time: 08:00 AM -09:00 AM**

The basic computer consists of the following hardware components:

1. A memory unit with 4096 words of 16 bits each

2. Nine registers: AR, PC, DR, AC, IR, TR, OUTR, INPR, and SC

3. Seven flip-flops: I, S, E, R, lEN, FGI, and FGO

4. Two decoders: a 3 x 8 operation decoder and a 4 x 16 timing decoder

5. A 16-bit common bus

6. Control logic gates

7. Adder and logic circuit connected to the input of AC

The memory unit is a standard component that can be obtained readily from a commercial source. The registers are of the type shown in  are similar to integrated circuit type 74163. The flip-flops can be either of the D or JK type, as described in Sec. 1-6. The two decoders are standard components similar to the ones presented in Sec. 2-2. The common bus system can be constructed with sixteen 8 x 1 multiplexers in a configuration similar to the one shown in Fig. 4-3. We are now going to show how to design the control logic gates. The next section deals with the design of the adder and logic circuit associated with AC.

