





## UNIT - III

- 3 (a) ASM (Algorithm State Machine) is a controller for logic design of a digital system and is regarded as a hardware algorithm. Show the general model of ASM and explain the working of each functional block. 8
- (b) Describe the one hot encoding method with its excitation table. 8

### OR

- 3 (a) Draw a synchronous sequential circuit with a single input line X and a single output line Z so as to produce an output  $Z=1$  whenever an input symbol completes a sequence of 4 identical input bits. The output is to be 0 otherwise. Also write its Boolean function expression. 6
- (b) Describe the functioning of PLA with a block diagram. 4
- (c) Discuss the difference between Mealy and Moore machine. 6

## UNIT - IV

- 4 (a) Explain the design procedure for asynchronous sequential circuit with suitable example. 8
- (b) Explain the static and essential hazards in digital circuit. 8

### OR

- 4 Design a asynchronous sequential circuit with two input T and C. The output attains a value of 1 when  $T = 1$  and C moves from 1 to 0. Otherwise the output is 0.
- (a) Draw the state diagram
- (b) Draw the flow table
- (c) Using implication table reduce the flow table
- (d) Obtain transition table. 16





## UNIT - V

- 5 (a) Which are the programmable elements of FPGA module ?  
Explain the function of each of them in detail. 8
- (b) Describe the case study of Altera stratix. 8

OR

- 5 Write short note on :
- (a) Technology mapping in FPGA
- (b) SRAM

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