B.Tech. || ECE || 4th Sem
Digital System Design
Subject Code: BTEC-402A
Paper ID:

Time allowed: 3 Hrs   Max Marks: 60

Important Instructions:
- **All questions are compulsory**

PART A (10x 2marks)

Q. 1.   Short-Answer Questions:
(a) Differentiate Combinational and sequential circuits.
(b) Can adder be used as a Subtractor, If yes explain how?
(c) Differentiate RAM and ROM.
(d) What is a multiplier?
(e) Differentiate half and full adder.
(f) How role of MUX is different from DEMUX?
(g) Differentiate PAL & PLA.
(h) Define FSM.
(i) What do you mean by asynchronous inputs of Flip-flop?
(j) What is the difference between latch and a flip-flop?

PART B (5×8marks)

Q. 2.   What do you mean by FSM? Explain its limitations.   CO3
                              OR
Explain the working of Moore and Mealy machines.   CO3

Q. 3.   Explain in detail the design of Sequential machine using ASM chart.   CO2
                              OR
Explain ASM charts by taking suitable example.   CO2

Q. 4.   Implement Full adder using 8:1 MUX.   CO1
                              OR
Write note on Programmable logic devices.   CO1

Q. 5.   Design a counter that count in sequence 0-1-2-3-4 and back to initial state   CO4
using D flip-flops. The counter must avoid lock-out condition.
                              OR
What is Flip-flop? Design a clocked JK Flip-flop.   CO4

Q. 6.   Design a 3-bit look ahead carry adder.   CO1
                              OR
Design a BCD to Excess-3 code converter using PLA.   CO1