[6402]-39
S.E. (Computer Engineering)
DIGITAL ELECTRONICS & LOGIC DESIGN
(2019 Pattern) (Semester - III) (210245)

Time : 2½ Hours]   *[Max. Marks : 70*

Instructions to the candidates :

1) *Attempt Q.1 or Q.2, Q.3 or Q.4, Q.5 or Q.6 & Q.7 or Q.8.*
2) *Figures to the right side indicate full marks.*
3) *Neat diagrams must be drawn wherever necessary.*

Q1) a) Compare asynchronous counter & synchronous counter. **[6]**

    b) Explain how J-K Flip-Flop is converted into **[6]**

       i) TFF

       ii) DFF

    c) Draw & Explain 4 bit ripple up counter. **[6]**

OR

Q2) a) State the different types of shift Registers & state its any two applications. **[6]**

    b) Write a short note on Johnson counter. **[6]**

    c) What is Mod counter? Design Mod-9 using IC7490. **[6]**

Q3) a) Draw a block diagram of PLA device & Explain. **[6]**

    b) Implement the following boolean function using PAL. **[6]**

$$f_1 = \sum m (3,6,7,11,12,13)$$

$$f_2 = \sum m (0,1,2,4,8,9,12,13)$$

    c) What is difference between PLA & PAL. **[5]**

OR

Q4) a) What is ASM chart? State & Explain basic component of ASM chart. **[5]**

    b) Implement following boolean function using PLA **[6]**

$$f_1 = \sum m (0,2,4,7,8,10)$$

$$f_2 = \sum m (1,2,3,8,9,10,14,15)$$

    c) Desing & Implement BCD to Excess - 3 code converter using PAL. **[6]**

P.T.O.

Q5) a) What is logic family? Give the classification of logic family & also write important characteristics of CMOS. **[6]**

b) Draw & Explain the circuit diagram of CMOS inverter. **[6]**

c) Define the following terms & mention the standard value of TTL logic family. **[6]**
   i) Fan out
   ii) Power desipeation
   iii) Noise Immunity

OR

Q6) a) Compare TTL & CMOS logic family. **[6]**

b) Explain CMOS NAND Gate with neat diagram. **[6]**

c) What are the advantages of open collector output? Justify your answer with suitable circuit. **[6]**

Q7) a) What is microprocessor & list different applications of microprocessor.**[6]**

b) Explain the memory organization of microprocessor. **[6]**

c) What are the different types of bases used in microprocessor & Explain it. **[5]**

OR

Q8) a) What are the various functional units of microprocessor? Explain ALU in brief. **[6]**

b) Draw & Explain block diagram of microprocessor. **[6]**

c) Explain 4-bit multiplier circuit using ALU & shift registers. **[5]**

◆ ◆ ◆

[6402]-39 2