

BACHELOR OF TECHNOLOGY (CBCS - 2023)
B. Tech. Sem-I COMPUTER SCIENCE & ENGINEERING :
SUBJECT : DIGITAL ELECTRONICS

Day : Friday

Time : 10:00 AM-01:00 PM

Date : 8/12/2023

W-27609-2023

Max. Marks : 60

N.B.:

- 1) All questions are **COMPULSORY**.
- 2) Figures to the right indicate **FULL** marks.
- 3) Draw neat and labeled diagram **WHEREVER** necessary.
- 4) Assume suitable data if necessary.

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- Q.1** Convert the following: [10]
- a) $(E72)_{16} = (?)_8$
 - b) $(375.25)_{10} = (?)_2$
 - c) $(6327.405)_8 = (?)_{10}$
 - d) $(10101110)_{10} = (?)_1$'s complement
 - e) $(283)_{10} = (?)_{BCD}$
- OR**
- Q.1** Explain gray code, excess 3, binary coded decimal (BCD) code with suitable example. [10]
- Q.2** Simplify the following function using k-map and implement using logic gates [10]
 $f(A, B, C, D) = \sum m (0, 2, 5, 6, 7, 8, 10, 13, 15)$
- OR**
- Q.2** Explain De-Morgan's Theorem in detail with suitable diagram. [10]
- Q.3** Explain 3×8 decoder with truth table and circuit diagram. [10]
- OR**
- Q.3** Design a multiplexer for following function [10]
 $F(A, B, C, D) = \sum m (0, 3, 4, 7, 8, 9, 13, 14)$
- Q.4** What is Ripple counter? Explain in detail. [10]
- OR**
- Q.4** What is shift register and explain its types with logic diagram. [10]
- Q.5** Describe notation of ASM chart. Draw ASM chart and state diagram. [10]
- OR**
- Q.5** Distinguish between Mealy and Moore machine with suitable diagram. [10]
- Q.6** Classify semiconductor memories in detail. [10]
- OR**
- Q.6** Implement full adder circuit using PLA. [10]

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