

BACHELOR OF TECHNOLOGY (C.B.C.S.) (2020 COURSE)
B.Tech.Sem - IV Robotics & Automation Engineering : WINTER- 2022
SUBJECT : ITC-II: DIGITAL ELECTRONICS

Day : Wednesday

Time : 02:30 PM-05:30 PM

Date : 30-11-2022

W-24787-2022

Max. Marks : 60

N.B.:

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

- Q.1 a) State and prove Demorgan's theorem. (05)
b) Convert gray code to binary code. (05)
i) 11011 ii) 111000

OR

- Q.1 Simplify $F(A,B,C,D) = m_1 + m_2 + m_3 + m_5 + m_7 + m_9 + m_{12}$ and draw its logic diagram. (10)

- Q.2 Design a 2 bit magnitude comparator. (10)

OR

- Q.2 What is full adder? Design a full adder using two half adders. (10)

- Q.3 What is shift register? Explain any one type of shift register in detail. (10)

OR

- Q.3 Explain S-R Flip Flop in detail with excitation table and neat diagram. (10)

- Q.4 What is hazard and hazard free realization explain it with example? (10)

OR

- Q.4 Explain Race free state assignment in detail. (10)

- Q.5 Draw and explain operation of CMOS-NOR gate. (10)

OR

- Q.5 State and explain characteristics of digital ICs. (10)

- Q.6 What is RAM? Explain different types of RAMs in detail. (10)

OR

- Q.6 Differentiate PLA, PAL and PROM. (10)

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