

BACHELOR OF TECHNOLOGY (CBCS - 2023)
B. Tech. Sem-I INFORMATION TECHNOLOGY : SUMMER : 2025
SUBJECT: DIGITAL ELECTRONICS

Day : Friday
Date : 16/05/2025

S-27658-2025

Time : 10:00 AM-01:00 PM
Max. Marks : 60

N.B.

- 1) All questions are **COMPULSORY**.
- 2) Figures to the right indicate **FULL** marks.
- 3) Assume suitable data if necessary.

Q.1 Explain the different types of number systems. (10)

OR

Q.1 Describe the method for converting a binary number to its decimal, octal and hexadecimal equivalents. (10)

Q.2 Explain the function of basic logic gates (AND, OR, NOT, NAND, NOR, XOR, XNOR) along with their truth tables. (10)

OR

Q.2 Simplify the following Boolean function using a 4-variable Karnaugh Map (K-Map) method $F(A, B, C, D) = \sum m(1, 3, 7, 11, 15)$. (10)

Q.3 Describe the function of a multiplexer in digital circuits With the help of 4 :1 multiplexer. (10)

OR

Q.3 Explain the working of a 2-bit binary comparator with reference to suitable example. (10)

Q.4 Describe the buffer register with suitable diagram. (10)

OR

Q.4 Describe J-K flip flop along with truth table and excitation table. (10)

Q.5 What is FSM? Describe in detail with an example. (10)

OR

Q.5 Construct the Mealy Machine that finite 'a' whenever the '01' is entered in input binary state. (10)

Q.6 Describe the characteristics of memory. (10)

OR

Q.6 Explain architecture of PLA with suitable diagram. (10)

* * * *