

Group B

Attempt any SIX questions. [6x5 = 30]

2. Define Digital Logic. Explain digital signal with its applications, advantages and disadvantages. [1 + 4]
3. Define positional number System [1]
calculate following: a) Subtract 21 from 35 using 2's complement method [2]
b) Convert $(62.75)_{10}$ into single precision floating point format [2]
4. Define universal gate. Explain Universal gates with their graphical symbol, algebraic expression, truth table, and Venn diagram [1 + 4]
5. Define Decoder. Explain binary to octal converter with block diagram, truth table and logic diagram [1 + 4]
6. Simplify the Boolean function $F(w,x,y,z) = \pi(0,2,4,6,8,10,12,14)$ and don't care conditions $d(w,x,y,z) = \pi(1,3,9,11)$ using K-Map method for both SOP and POS form [2.5 + 2.5]
7. Design Multiplexer. Explain 4:1 multiplexer with its block diagram, truth table and logic diagram [1 + 4]
8. Write short Notes on (any Two): [2.5 + 2.5]
 - a. Parallel Adder
 - b. PLA
 - c. State Diagram

Group C

Attempt any TWO Questions

9. Explain JK and T FlipFlop with their Logic and Diagram, graphical symbol, characteristic table, characteristic equation and excitation table. [5 + 5]
10. Differentiate between asynchronous and synchronous sequential circuits with example. Draw a block diagram, truth table and timing diagram to store 2001 in 4-bit SIPO register. [4 + 6]
11. Define counter. Write a procedure to design a counter circuit. Design MOD-8 up counter [1 + 2 + 7]