

EE204 DIGITAL CIRCUITS AND SYTEMS

Time:1:30 Hours

Max. Marks :25

Note: Attempt ALL questions. Draw neat diagrams wherever required.
Assume suitable missing data, if any.

1. [a] Reduce the following Boolean expression to three literals (4x2.5)
$$F(A, B, C, D) = [(CD)' + A]' + A + CD + AB$$

[b] Express the following functions in a sum of minterms and a product of maxterms.
$$F(A, B, C) = (A' + B)(B' + C)$$

[c] Implement the following Boolean function with three level NOR Gates.
$$F(x, y, z) = \sum(0, 6)$$

[d] Design a three bit even parity generator using Ex-OR and Equivalence function.

2. The following Boolean expression: (5)
$$BE + B'DE'$$

Is a simplified version of the expression:
$$A'BE + BCDE + BC'D'E + A'B'DE' + B'C'DE'$$

Are there any don't care conditions? If so what are they?

3. Design a BCD to Excess-3 code converter using AND, OR and NOT gates. (5)

4. Simplify the following Boolean function by means of Tabulation method.
$$F(A, B, C, D, E, F) = \sum(6, 9, 13, 18, 19, 25, 27, 29, 41, 45, 57, 61)$$
 (5)

END