



End Term (Odd) Semester Examination November 2025

Roll no.....

Name of the Course and semester: BCA IIIrd sem

Name of the Paper: Digital Logic Design

Paper Code: TBC 303

Time: 3 hour

Maximum Marks: 100

Note:

- (i) All the questions are compulsory.
- (ii) Answer any two sub questions from a, b and c in each main question.
- (iii) Total marks for each question is 20 (twenty).
- (iv) Each sub-question carries 10 marks.

Q1.

(2X10=20 Marks)

a. Perform the following operations

(CO1)

i. $(35)_{10} - (27)_{10}$, using 2's complement method.

ii. 345+675 perform BCD addition.

b. Convert the following in required base

(CO1)

$$(56)_8 = (\underline{\hspace{2cm}})_5 = (\underline{\hspace{2cm}})_{16}$$

c. $Y = A + B'C$ implement using NAND gate only.

(CO1)

Q2.

(2X10=20 Marks)

a. Minimize the Boolean function $F(A,B,C,D) = \Sigma(0,2,4,8,9,10,12,13)$ using a 4-variable K-map.

(CO2)

b. Explain Boolean theorems and postulates. Prove DeMorgan's theorems.

(CO2)

c. $Y = AB + BC$ find its Canonical SOP and POS.

(CO2)

Q3.

(2X10=20 Marks)

a. Draw and explain circuit of Full Subtractor.

(CO3)

b. Differentiate between Combinational and sequential circuits give example of each.

(CO3)

c. Design BCD to GRAY code converter.

(CO3)

Q4.

(2X10=20 Marks)

a. Explain operation of SISO shift register.

(CO4)

b. Design a MOD-5 Asynchronous counter.

(CO4)

c. Explain Excitation table of JK Flip Flop.

(CO4)

Q5.

(2X10=20 Marks)

a. Explain Difference between RAM and ROM.

(CO5)

b. Implement full subtractor using PLA.

(CO5)

c. What is the Difference between PLA and PAL?

(CO5)