

Assignment - 02

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Course Title : Digital Logic Design

Course Code : CSE260

Section : 18

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Answer to the Q. NO-01

Given,

boolean expression,

$$(A+B)(A+\bar{B})(\bar{A}+C)$$

$$= \{A + (A) \cdot (\bar{B}) + (A) \cdot (B) + 0\} \cdot (\bar{A}+C)$$

$$= \{A(1+\bar{B}) + (A) \cdot (B)\} (\bar{A}+C)$$

$$= \{A + (A) \cdot (B)\} (\bar{A}+C)$$

$$= \{A(1+B)\} \cdot (\bar{A}+C)$$

$$= A(\bar{A}+C)$$

$$= A \cdot \bar{A} + A \cdot C$$

$$= 1 \cdot AC$$

$$= AC$$

$$\therefore (A+B)(A+\bar{B})(\bar{A}+C) = AC$$

We know,
Formula:-

$$1 \cdot A = A$$

$$1 + A = 1$$

$$A + A = A$$

$$A + \bar{A} = 1$$

$$A \cdot \bar{A} = 0$$

(Answer)

[P.T.O.]

Answer to the Q. NO-02

Given expression:-

$$\begin{aligned} & (x' + y + z') (x' + y') (x + z') \\ &= (x' \cdot y \cdot z') + (x' \cdot y') + (x \cdot z') \\ &= (x \cdot y' \cdot z) + (x \cdot y) + (x' \cdot z) \end{aligned}$$

(Ans:)

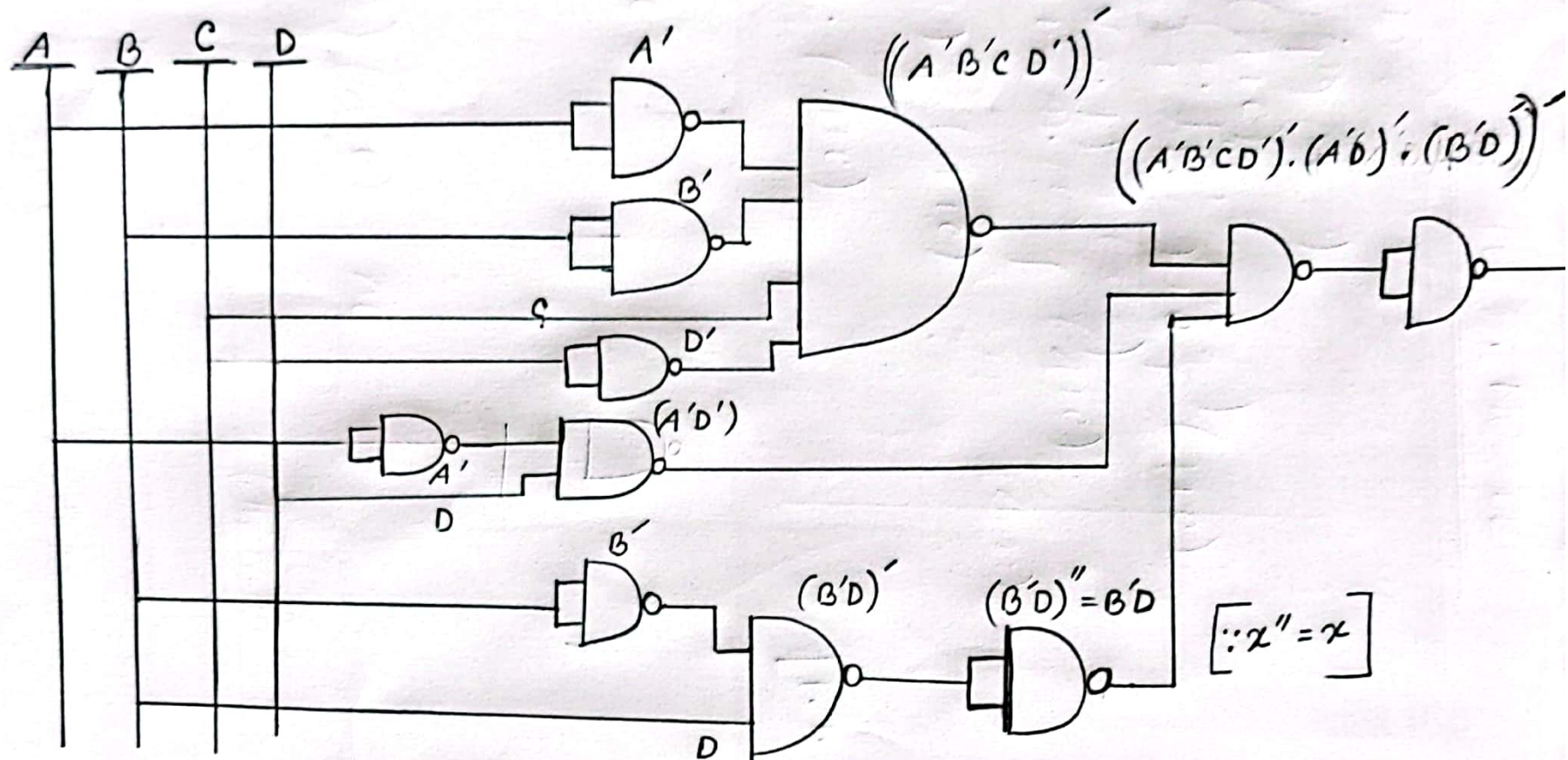
[P.T.O.]

Given,

Answer to the Q. NO-03

$$F(A, B, C, D) = (A'B'CD' + A'D + (B+D'))$$

Drawing using NAND Gates only:-



We can write from the above,

$$((A'B'CD') \cdot (A'D') \cdot (B'D)')' = (A'B'CD')'' + (A'D)'' + (B'D)'' \quad [\because (xy)' = x' + y']$$

[P.T.O.]

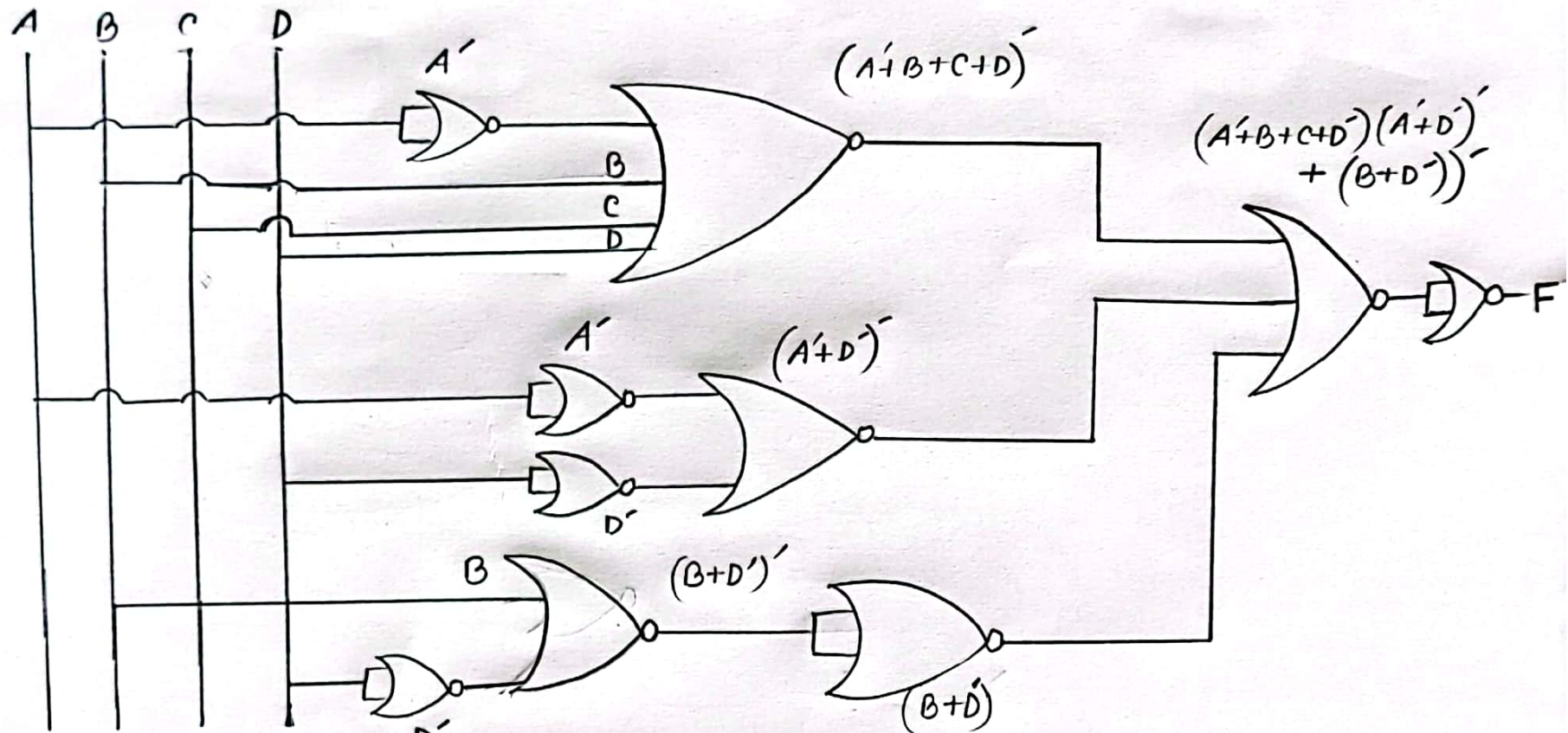
$$= A'B'CD' + A'D + B'D \quad [\because x'' = x] \quad (Am:)$$

Answer to the Q. NO - 04

Given,

$$F(A, B, C, D) = (AB'C'D' + AD + (B+D'))$$

drawing using NOR Gates only:-



We can write from the above,

$$\begin{aligned} (A'+B+C+D)' + (A'+D)' + (B+D') &= A \cdot B \cdot C' \cdot D' + AD + (B+D') \\ &= A \cdot B \cdot C' \cdot D' + AD + (B+D') \end{aligned}$$

(Ans.)