# EE, EC, CS & IT ENGINEERING

Digital Logic Minimization

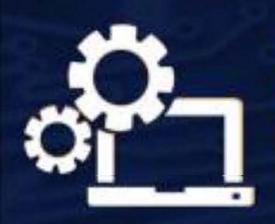
Boolean Algebra

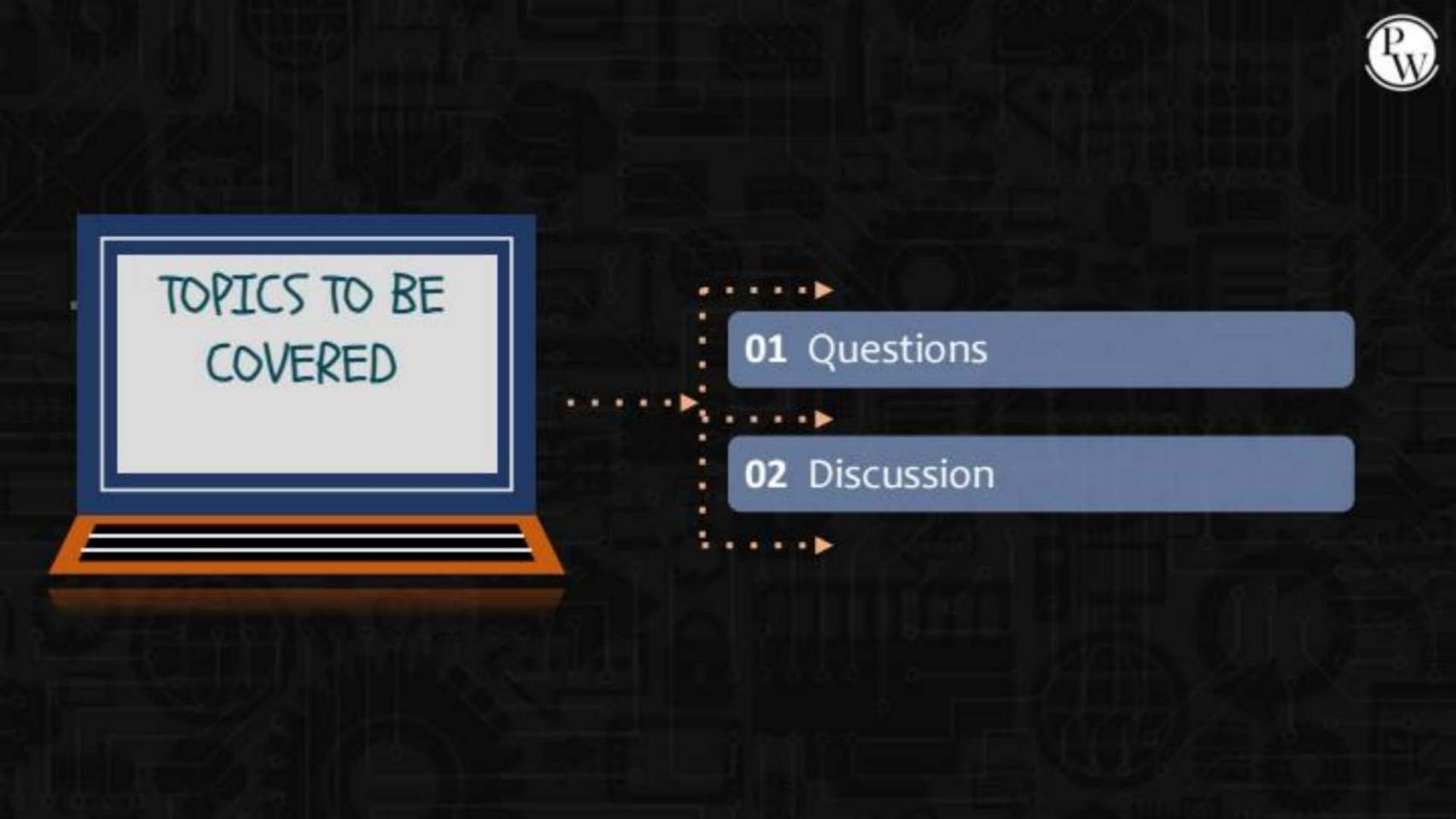
**DPP Solution 1** 

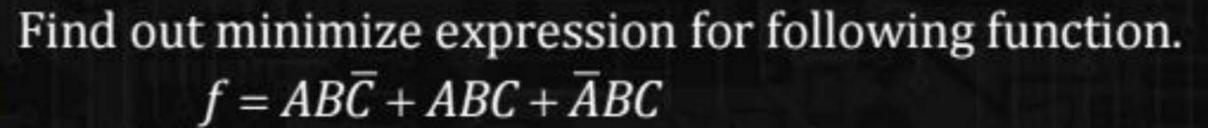
Discussion



By- CHANDAN SIR









$$AB + BC$$

B. 
$$A\bar{C} + \bar{A}B$$

C. 
$$BC + \overline{A}B$$

D. 
$$\overline{A}B + B\overline{C}$$





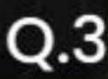
$$f = AB + A\overline{B} + \overline{A}\,\overline{B}$$

A. 
$$\overline{A} + B$$

$$A + \bar{B}$$

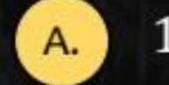
$$\overline{A} + \overline{B}$$

D. 
$$A+B$$





$$f = (A+B)(A+\overline{B})(\overline{A}+B)(\overline{A}+\overline{B})$$



 $\bar{A}\bar{B}$ 



D.  $A\bar{B}$ 

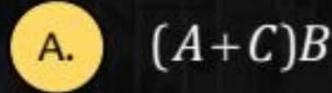
By two Variable



## Find out minimize expression for following function.



$$f = (A+B+C)(A+B+\overline{C})$$



$$\begin{array}{c} B. \\ A + \overline{C} \end{array}$$



D. 
$$A(B+C)$$

$$f = (x+c)(x+c)$$

$$= x+c\cdot c$$

$$= \chi$$

$$= \left( \frac{1}{A+B} \right)$$

Distribution Theorem

#### The Boolean expression

Pw



D. 
$$X + \overline{Y}$$

$$f = (X+Y)(X+\overline{Y}) + \overline{X}\overline{Y} + \overline{X}$$

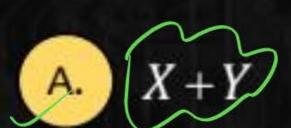
$$\times + 4.\overline{4} = \times$$

$$\int = x + \overline{x} + x$$

$$x + \overline{x} = x + x = x$$

$$x + \overline{x} = x + x = x + x$$

# The logic expression $f = X + \overline{X}Y$ Is equivalent to



B. XY

$$\overline{X} + Y$$

D. 
$$X + \overline{Y}$$





The logic expression f = (A+B)(A+C)Is equivalent to A+B = (A+B)(A+C)



Pistribution Theorem

$$A. (A+BC)$$

- B. B + AC
- C + AC
- D.  $\overline{A} + BC$

# The Boolean expression $f = (1 + \overline{A})(B + AC)$ is equivalent to = 1 + (B + AC)



B. 
$$\overline{A}C + B$$

$$\overline{A} + BC$$

D. 1



### Find minimization expression

Pw

$$f = (A + \overline{A}) + (BC + AC)(A + D)$$

$$C. AB + CD$$

D. 
$$ABC + BCD + ACD$$

$$J = 1 + (Bc + AcJ. \{A+b\})$$

$$L + anything = 1$$

# Find out minimization f = (A+B)(A+B+C)



A. 
$$B+C$$

$$B$$
.  $A+B$ 

$$C. A+B+C$$

D. 
$$AB + BC + AC$$





