Digital Logic Design
Daily Practice Problems
Day -4

Q. Minimize the following Boolean expressions

$i. AB + A(B + C) + \bar{B}(B + D)$

$ii. (x + y + z)(\bar{x} + \vec{y} + \bar{z})x$

$iii. ABEF + AB\overline{EF} + \overline{AB}EF$

$iv. ABC[AB + \bar{C}(BC + AC)]$

$v. \bar{A}B + \bar{A}B\bar{C} + \bar{A}BCD + \bar{A}B\bar{C}\bar{D}E$

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

$vii. \bar{B}\bar{C}D + \overline{(B + C + D)} + \bar{B}\bar{C}\vec{D}E$

$viii. \overline{(A\bar{B}C)\overline{(A\bar{B})}} + BC$

ix. $(\omega x + \omega \bar{y})(x + \omega) + \omega x(\bar{x} + \bar{y})$

x. $AB + \overline{AC} + A\vec{B}C(AB + C)$

xi. $\vec{A}\bar{B}\bar{C} + \bar{A}B\bar{C} + AB\bar{C} + A\bar{B}\bar{C}$

$xii. \overline{\overline{AB} + \vec{A} + AB}$

xiii. $AB + \overline{AC} + A\bar{B}C(AB + C)$

$xiv. \overline{\overline{A\bar{B} + ABC} + A(B + A\bar{B})}$

xv. $AB + A(B + C) + B(B + C)$

xvi. $A\bar{B}(C + BD) + \bar{A}\bar{B}$

xvii. $\bar{A}\bar{B}C + \overline{(A + B + \bar{C})} + \bar{A}\bar{B}\bar{C}D$

xviii. $ABCD + AB(\overline{CD}) + \overline{AB}CD$

xix. $(A + \bar{A})(AB + AB\bar{C})$

xx. $(A\bar{B} + A\bar{C})(BC + B\bar{C})(ABC)$

xxi. $A\bar{B}C + \bar{A}BC + ABC$

xxii. $A\left[B + C\overline{(AB + AC)}\right]$

xxiii. $\overline{(A + \overline{BC})}(A\overline{B} + \overline{ABC})$

xxiv. $A + \overline{B}C\left(A + \overline{\overrightarrow{B}C}\right)$

xxv. $\overline{ABC}\ \overline{(A + B + C)}$

xxvi. $\overline{\overline{ABC + \overline{A}\overline{B}} + BC}$

xxvii. $\overline{\overline{(A + B)}\overline{(C + D)}\overline{(E + F)}\overline{(G + H)}}$