Họ tên: Trần Nguyễn Anh Chương — Lớp: SE1709

11.7.

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

A	B	C	$\bar{A}$	$\bar{B}$	$\bar{C}$	$A\bar{C}$	$A\bar{B}\bar{C}$	$A\bar{B}C + A\bar{B}\bar{C}$
1	1	1	0	0	0	1	0	1
1	1	0	0	0	1	0	0	0
1	0	1	0	1	0	0	0	0
1	0	0	0	1	1	0	0	0
0	1	1	1	0	0	0	0	0
0	1	0	1	0	1	0	0	0
0	0	1	1	1	0	0	0	0
0	0	0	1	1	1	0	1	1

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

A	B	C	$A\bar{C}$	$A\bar{B}C + \bar{A}\bar{B}\bar{C} + \bar{A}\bar{B}\bar{C}$
1	1	1	0	1
1	1	0	1	0
1	0	1	0	0
1	0	0	1	1
0	1	1	0	0
0	1	0	0	0
0	0	1	0	0
0	0	0	0	1

T.T BOOK

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

A	B	C	$B\bar{C}$	$\bar{B}C$	$B\bar{C} + \bar{B}C$	$A(B\bar{C} + \bar{B}C)$
1	1	1	0	0	0	0
1	1	0	1	0	1	1
1	0	1	0	1	1	1
1	0	0	0	0	0	0
0	1	1	0	0	0	0
0	1	0	1	0	1	0
0	0	1	0	1	1	0
0	0	0	0	0	0	0

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

A	B	C	$A+B$	$A+C$	$\bar{A}+\bar{B}$	$(A+B)(A+C)(\bar{A}+\bar{B})$
1	1	1	1	1	0	0
1	1	0	1	1	0	0
1	0	1	1	1	1	1
1	0	0	1	1	1	1
0	1	1	1	1	1	1
0	1	0	1	0	1	0
0	0	1	0	1	1	0
0	0	0	0	0	1	0

Tên: Trần Nguyễn Quốc Cường

Lớp: SE[illegible]

11.2

a) $A.\overline{B} + \overline{B}.A + C.D.E + \overline{C}.D.E + E.\overline{C}.D$

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

$= A\overline{B} + DE$ ~~(1+0)~~

b) $A.B + A.C + B.A$

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

c) $(C.M.N)(A.B)(C.D.E)(M.N.C)$

$= (C.C)(M.M)(N.N)(A.B)(C.D.E)$

$= (C.M.N)(A.B)(C.D.E)$

$= C.M.N.A.B.C.D.E$

d) $F.(K+R) + S.V + W.\overline{X} + V.S + \overline{X}.W + (R+K).F$

$= V(S+S) + W.(\overline{X} + \overline{X}) + (R+K)(F+F)$

$= F.R + F.K + V.S + W.\overline{X}$

11.3. De Morgan $< \begin{matrix} \overline{A+B} = \overline{A}.\overline{B} \\ \overline{A.B} = \overline{A} + \overline{B} \end{matrix} \Rightarrow \overline{A} + \overline{B} = \overline{AB}$

a) $F = \overline{V + A + C} = \overline{V}.\overline{A}.\overline{C}$

c) $F = \overline{A} + \overline{B} + \overline{C} + \overline{D} = \overline{A.B.C.D}$

11.4.

a) $A = S.T + V.W + R.S.T$

$A = S.T(R+1) + V.W$

$A = S.T + V.W$

Tên: Phan Nguyễn Quốc Cường Lớp: SE7309

a) $A = T.U.V + X.Y + Y$

$A = T.U.V + (X+1)Y$

$A = T.U.V + Y$

c) $A = F.(E + F + G)$

$A = F.E + F.F + F.G$

$A = F.E + F + F.G$

d) $A = (P.Q + R + S.T).T.S$

$A = (P.Q.T + R.T + S.T.T).S$

$A = (P.Q.T + R.T + S.T).S$

$A = P.Q.T.S + R.T.S + S.T.S$

$A = P.Q.T.S + R.T.S + T$

e) $A = \overline{\bar{D}\,\bar{D}E}$

$A = D + D + \bar{E}$

$A = D + \bar{E}$

f) $A = Y.(W + X + \overline{\bar{Y}.\bar{Z}}).Z$

$A = WYZ + XYZ + \cancel{YZ(Y+Z)}\,YZ\,YZ$

$A = WYZ + XYZ + YZ$

g) $A = (B.\bar{E} + C + F).C$

$A = B\bar{E}.C + C.C + F.C$

$A = B\bar{E}.C + C + F.C$

11.5

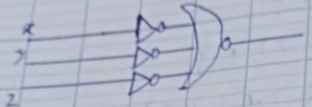
T.T BOOK

Bài: Thuật toán thiết kế mạch

XOR: $\bar{x}y + x\bar{y}$ AND $[(NOT\ x)\ OR\ y]$ $[x\ OR\ (NOT\ y)]$

$\Rightarrow$ 6.

NOR: $\overline{x + y_2} \Rightarrow \bar{x} \cdot \bar{y_2} = x \cdot y_2$ AND



11.7.

$NAND(x, y, z, m) = \overline{xyzm}$

11.8.

a) 9 numbers:

0 → 0000 (Light up switch $Z_1, Z_2, Z_3, Z_5, Z_6, Z_7$)

1 → 0001 (Light up switch Z_3, Z_8)

2 → 0010 (Light up switch Z_1, Z_3, Z_4, Z_5, Z_7)

3 → 0011 (Z_1, Z_3, Z_4, Z_6, Z_7)

4 → 0100 (Z_2, Z_3, Z_4, Z_6, Z_7)

5 → 0101 (Z_1, Z_2, Z_4, Z_6, Z_7)

6 → 0110 (Z_2, Z_4, Z_5, Z_6, Z_7)

7 → 0111 (Z_1, Z_3, Z_6)

8 → 1000 ($Z_1 \to Z_7$) 9 → 1001 (Z_1, Z_2, Z_3, Z_4, Z_6)

Lớp: SE1700

Họ: Trần Nguyễn Quốc Cường

Other unused combinations from 1010 → 1111 (No light)

x_1	x_2	x_3	x_4	z_1	z_2	z_3	z_4	z_5	z_6	z_7
0	0	0	0	1	1	1	0	1	1	1
0	0	0	1	0	0	1	0	0	1	0
0	0	1	0	1	0	1	1	1	0	1
0	0	1	1	1	0	1	1	0	1	1
0	1	0	0	0	1	1	1	0	1	0
0	1	0	1	1	1	0	1	0	1	1
0	1	1	1	1	0	1	0	0	1	0
1	0	0	0	1	1	1	1	1	1	1
1	0	0	1	1	1	1	1	0	1	0
1	0	1	0	0	0	0	0	0	0	0
1	0	1	1	0	0	0	0	0	0	0
1	1	0	0	0	0	0	0	0	0	0
1	1	0	1	0	0	0	0	0	0	0
1	1	1	0	0	0	0	0	0	0	0
1	1	1	1	0	0	0	0	0	0	0

b) SOP is ~~tuon~~ list all combinations ~~to~~ → that produce an output of 1

c) POS is list all combinations that produce an output of 0

T.T BOOK