

9.5
10

Name Samar Shaheen # 1230580

Question#1: The simplest form for $F = Y.(X+Y) + (X+Y).Z' + Y.Z$ is

$$\begin{aligned}
 F &= \cancel{YX} + Y + \cancel{XZ'} + YZ' + YZ \\
 &= Y(1+X) + XZ' + Y(Z'+Z) \\
 &= Y + XZ' + Y \\
 &= (Y+Y) + XZ' \\
 &= Y + XZ'
 \end{aligned}$$

3

Question#2: Do the following operation in BCD. $999 + 997$

1996

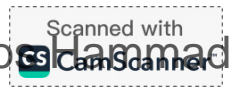
$$\begin{array}{r}
 \cancel{1001} \cancel{001} \cancel{001} \cancel{001} \\
 + \cancel{1001} \cancel{001} \cancel{001} \cancel{001} \\
 \hline
 \cancel{1001} \cancel{001} \cancel{001} \cancel{001}
 \end{array}$$

$$\begin{array}{r}
 1001 \ 1001 \ 1001 \\
 + 1001 \ 1001 \ 0111 \\
 \hline
 1001 \ 1001 \ 1001 \ 0111 \\
 + 0110 \ 0110 \ 0110 \\
 \hline
 1001 \ 1001 \ 1001 \ 0111
 \end{array}$$

$= 1001 \ 1001 \ 1001 \ 0110$

$= 1996$

3



Question#3: do the following operations $(AFAE)_{16} + (AFAE)_{16}$

$$\begin{array}{r}
 \overset{1}{A} \overset{1}{F} \overset{1}{A} \overset{1}{E} \\
 \overset{1}{A} \overset{1}{F} \overset{1}{A} \overset{1}{E} \\
 \hline
 17F5C
 \end{array}$$

$$= \underline{17F5C}$$

1.5

Question#4: Given the function $F(a, b, c) = a(b' + c)$. Express F as a product of Maxterms

$$F(a, b, c) = ab' + ac$$

$$F(a, b, c) = ab'(c + c') + ac \cdot (b + b')$$

$$= ab'c + ab'c' + abc + ab'c$$

$$101, 100, 111, 101$$

$$5, 4, 7$$

$$F(a, b, c) = \sum m(4, 5, 7)$$

$$F(a, b, c) = \prod M(0, 1, 2, 3, 6)$$

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