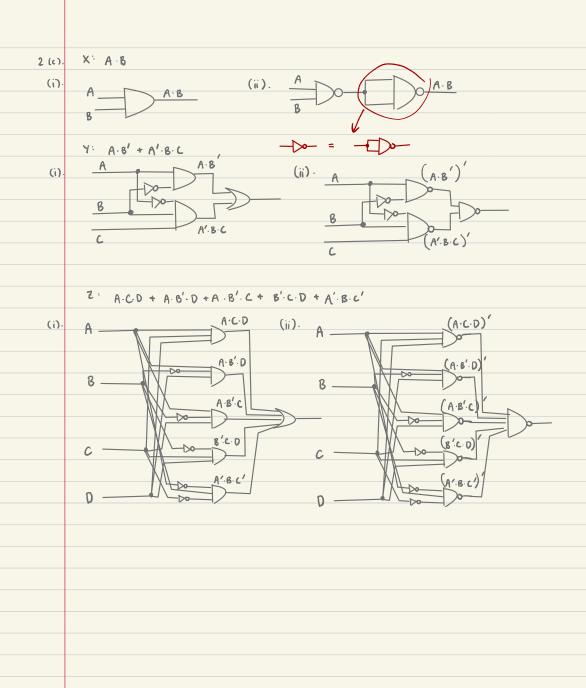
CS2100 - Tutorial 9 - Logic Gates & Simplification

| l (a). | To generate truth table for PC | 0\$: |
|--------|--------------------------------|------------------------|
| | For each sum term: | |
| | find out which combinations | of variables give 'l's |
| | Rest are 'O's | |
| | | |
| (b)· | sop ex pos | C |
| | 1. Z (product terms) | X 00 01 11 10 |
| | , 3 | (b). 00 PI |
| | | oi EPI |
| 2 (a). | A B C D XYZ | G Smoulest |
| | 0 0 0 0 000 | A " Set of PI |
| | 0 0 0 1 000 | (10) |
| | 0 0 0 0 0 0 0 | |
| | 0011001 | D C |
| | 0 1 0 0 0 0 1 | 7 00 01 11 10 |
| | 0 1 0 1 001 | 00 |
| | 0 1 1 0 010 | 01 |
| | 0 1 1 1 010 | (B |
| | 1 0 0 0 010 | A 3" |
| | 1001 011 | 10 [1 1] |
| | 1010 011 | |
| | 1011 011 | D C |
| | 1 1 0 0 100 | Z 00 01 10 10 |
| | (0 (100 | 00 |
| | 1 1 1 0 100 | 1 |
| | (() 1 (0) | 6 |
| | | A 3" J |
| | X' A.B | (, () |
| | Y: A.B' + A'.B.C | |
| | Z: A.C.D + A.B'.D + A.B'.C + | B'.C.D + A'.B.C' D |



3 (a).

(b)·

| 0 0 0 0 1 0 0 0 1 0 0 0 1 0 0 0 0 1 1 1 0 1 0 1 1 0 1 0 1 1 | Х | Υ | Z | W | P |
|---|---|---|---|---|---|
| 0 0 1 0 0 0 0 1 1 1 0 1 0 0 0 0 1 0 1 1 | 0 | 0 | 0 | 0 | 1 |
| 0 0 1 1 1 0 0 0 0 0 1 0 1 0 1 | 0 | 0 | 0 | 1 | 0 |
| 0 1 0 0 0 0 1 0 1 I | 0 | 0 | 1 | 0 | 0 |
| 0 1 0 1 | 0 | 0 | 1 | 1 | 1 |
| | 0 | 1 | 0 | 0 | 0 |
| 0 1 1 0 | 0 | 1 | 0 | 1 | l |
| 0 1 1 0 | 0 | 1 | 1 | 0 | ŀ |
| 0 1 1 1 0 | 0 | 1 | 1 | 1 | 0 |

| Х | Υ | Z | W | P |
|---|---|---|---|---|
| 1 | 0 | 0 | 0 | O |
| 1 | 0 | 0 | 1 | 1 |
| 1 | 0 | 1 | 0 | Χ |
| 1 | 0 | 1 | 1 | X |
| 1 | 1 | 0 | 0 | × |
| 1 | 1 | 0 | 1 | X |
| 1 | 1 | 1 | 0 | X |
| 1 | 1 | 1 | 1 | X |

X: don't care