University of Asia Pacific

Peripheral & Interfacing(CSE 315)

Department of CSE

Assignment

Topic/Question: Full Subtractor (sketch & Equation)

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Equation :

For D :

$$D = (A \wedge B) \wedge C$$

$$= (A \oplus B) \oplus C$$

For B_o :

$$B_o = C\,\overline{(A \wedge B)} + \bar{A}B$$

$$= C\,\overline{(A \oplus B)} + \bar{A}B$$

Sketch (Full subtractor):

```
void setup(){
    pinMode(13, OUTPUT);
    pinMode(12, OUTPUT);
    pinMode(10, INPUT);
    pinMode(9, INPUT);
    pinMode(8, INPUT);
}
void loop(){
    byte A, B, C, D, temp1, temp2;
    A = digitalRead(10);
    B = digitalRead(9);
    C = digitalRead(8);

    D = !A;
    tepm1 = !(A^B);
    tepm2 = C & temp1;

    temp1 = D & B;
  digitalWrite(12, temp2 | temp1);
  //Result of 'Bo' showing at pin 12

  digitalWrite(13, (A^B)^C);
  //Result of 'D' showing at pin 13
}
```