DLD Online 1

Section A2

There are 6 boolean functions in the following page. **There are students ids written beside each problem.**

- You have to implement the boolean functions using **ONLY** the following IC chips in your circuit: ***IC 74x04, IC 74x08,*** and ***IC 74x32***
- Each student will have to implement **only** the function having his/her student id written beside (Check next page).
- The online carries 10 Marks.
- Name you submission as STUDENT_ID.circ (e.g., **1905006.circ**). Submit the file in the moodle.
- **Time: 30 minutes + 5 Minutes to submit in Moodle.** Submissions made after this period will not be evaluated.

Step 1: Given a **4**-bit Boolean input $X=X_3X_2X_1X_0$. Implement a Boolean function:
$F(X) =$

1. $X_2(X_3X_1+X_1'X_0')+X_3X_0(X_2'+X_1)$ [student id: **31,37,43,49,55**]
2. $X_2'(X_3'X_1+X_3X_0')+X_1X_0(X_3'+X_2)$ [student id: **32,38,44,50,56**]
3. $X_1(X_3X_2+X_3'X_0)+X_2'X_0(X_3'+X_1')$ [student id: **33,39,45,51,57**]
4. $X_1'(X_3X_0'+X_2X_0)+X_3'X_0(X_2+X_1)$ [student id: **34,40,46,52,58**]
5. $X_0'(X_3X_2+X_2'X_1')+X_2X_1(X_3+X_0)$ [student id: **35,41,47,53,59**]
6. $X_0(X_3'X_2+X_3X_1)+X_3X_2'(X_1+X_0')$ [student id: **36,42,48,54,60**]

Step 2: Create a circuit with **4** input bits X_3,X_2,X_1,X_0 and **2** output bits $F(X)$, $F(X)'$. (Hence, **4** input pins and **2** output pins)
Step 3: For given two **4**-bit Boolean inputs A and B, use the created circuit to calculate $F(A)'F(B)+F(A)F(B)'$. (**2** input pins, each with **4** data bits)

Evaluation

Problem	Teacher's Initial	Link
1 and 2	MN	Meeting ID: 653 7295 3645, passwd: 476834
3 and 4	TA	https://bdren.zoom.us/j/69415066378?pwd=YkloYzdPMlV6MHI1aXh0alJGV3M4dz09
5 and 6	RRD	https://bdren.zoom.us/my/rayhan.live