

***KFUPM - ELECTRICAL ENGINEERING DEPARTMENT***

**EE-200 – Digital Logic Circuit Design (section 05) – Quiz06 – Take Home –  
Due Sun Nov 22<sup>nd</sup> in class**

**Student Name:**

**Student Number:**

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**Problem 1 (10 points):**

Consider the JK flip-flop constructed in class using a D flip-flop and using logic gates (as shown in textbook page 217 Figure 5.12). Use a 2-to-1 MUX and one D flip-flop to implement the JK flip-flop.

**Problem 2 (20 points):**

A WZ flip-flop has four operations: complement, set to 1, reset to 0, and no change, when inputs W and Z are 00, 01, 10, and 11, respectively.

- a) Write the characteristic table
- b) Derive the characteristic equation
- c) Write the excitation table
- d) Construct a WZ flip-flop using the D flip-flop
- e) Construct the D flip-flop using the WZ flip-flop

Note the (d) and (e) are TWO DIFFERENT questions.