

**Mount Kenya University**

**BEG 2112** **DIGITAL ELECTRONICS AND DEVICES**

**VIRTUAL**

**CONTINUOUS ASSESSMENT TEST**

1. Construct the logic circuits that can implement the Boolean expressions:
2.  **[3 marks]**
3.  **[5 marks]**
4. Prove the following identity:  **[5 marks]**
5. Draw a four-stage shift-right register using D-flip flops and explain its operation. **[5 marks]**
6. Using a truth table and Boolean expressions, design a half-subtractor.

**[5 marks]**

1. Simplify the following SOP expression using the K-map:

 **[8 marks]**

1. Obtain the minimal expression for the Boolean function given below using the K-map and implement the minimum expression using only NOR gates. **[9 marks]**

