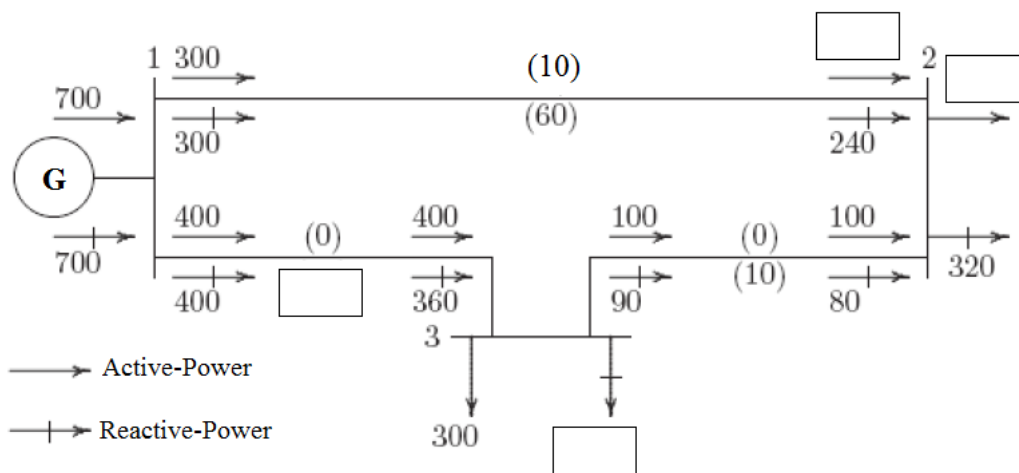Quiz 3   ser#:   I.D.:   Name:

Q1. Below is the load-flow output of a 3-bus system. Fill in the missing information in the four-boxes.   (4 points)
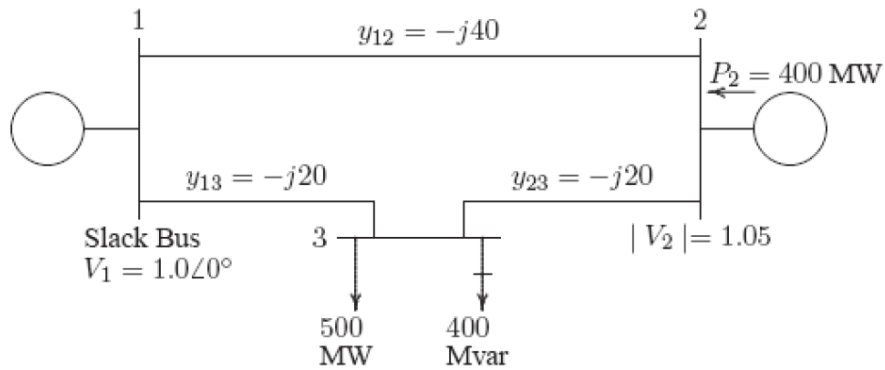

Q2. A PQ-bus is a bus that is connected to a load only.   (1 points)

☐ True   ☐ False

Q3. A power system with N busses has two voltage-controlled busses, the size of the Jacobian matrix when using Newton Raphson technique in the polar-form is   (2 points)

    a. (2N-4) x (2N-2)

    b. (2N-4) x (2N-4)

    c. (2N-2) x (2N-4)

    d. (2N-2) x (2N-2)

Q4. For the 3-bus system shown below, the formulation of the active power at bus 3 can be
    expressed as   (3 points)

a. $500 = 20|V_3||V_1|cos(90^o - \delta_3 + \delta_1) + 20|V_3||V_2|cos(90^o - \delta_3 + \delta_2)$

b. $-500 = 20|V_3||V_1|cos(90^o - \delta_3 + \delta_1) + 20|V_3||V_2|cos(90^o - \delta_3 + \delta_2)$

c. $500 = 20|V_3||V_1|cos(90^o - \delta_3 - \delta_1) + 20|V_3||V_2|cos(90^o - \delta_3 - \delta_2)$

d. $-500 = 20|V_3||V_1|cos(90^o - \delta_3 - \delta_1) + 20|V_3||V_2|cos(90^o - \delta_3 - \delta_2)$