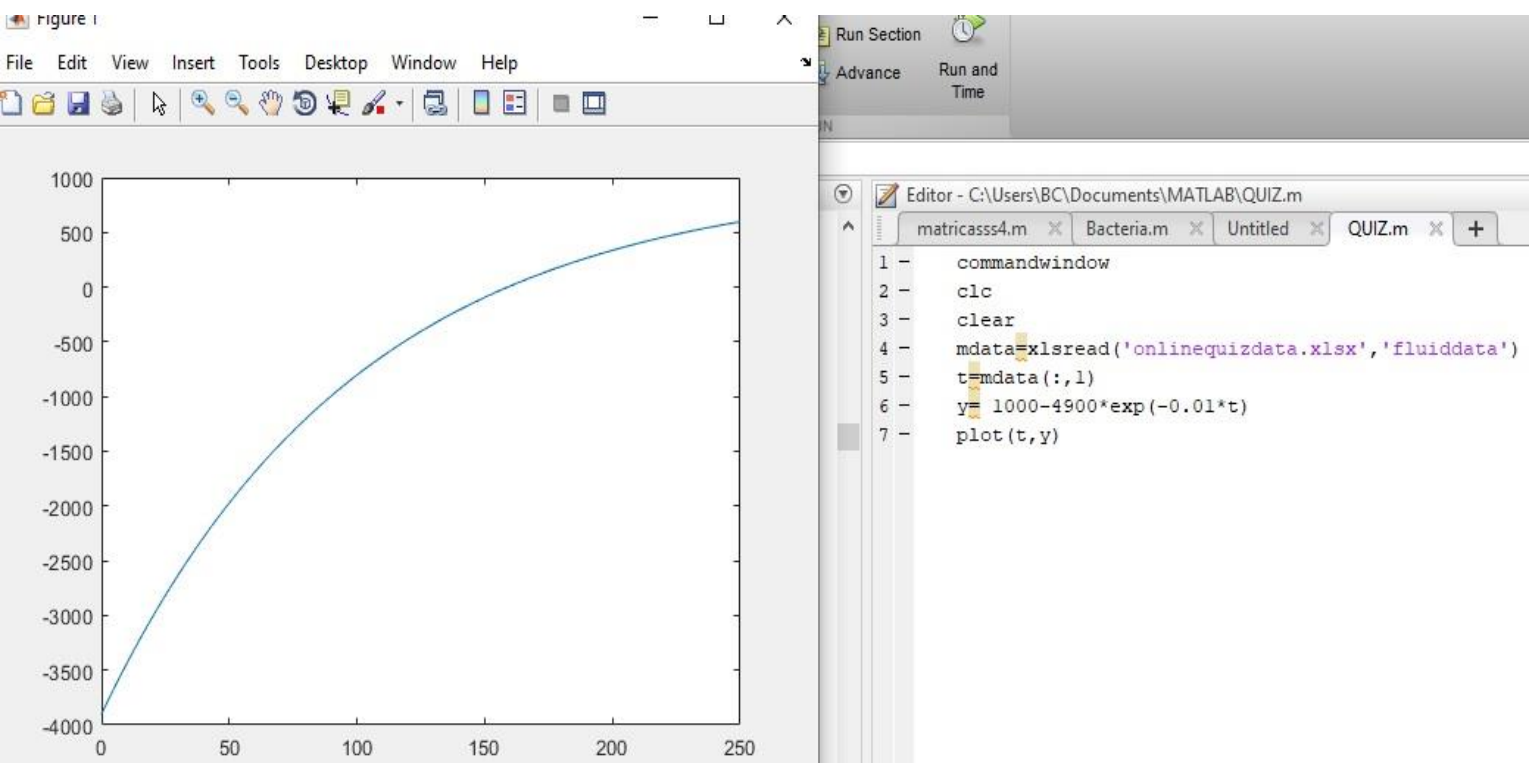


IZUCHUKWU CHIDERA VICTOR

18/ENG05/024

MECHATRONICS

QUESTION TWO



QUESTION ONE

Initial = 10°C
After 5 minutes = 20°C 5 min = 300 sec
Actual System temp = 25°C
Time of thermo. to reach $24.9^{\circ}\text{C} = ?$

$$1^{\circ} = \frac{300}{10} = 30 \text{ sec}$$

$$24.9^{\circ}\text{C} - 20^{\circ}\text{C} = 4.9^{\circ}\text{C}$$

$$4.9^{\circ} \times 30 = \cancel{245} \text{ min } 147 \text{ sec}$$
$$= 2.45 \text{ min}$$

$$\therefore \text{Time to reach } 24.9^{\circ}\text{C} = (5 + 2.45) \text{ min}$$
$$= 7.45 \text{ min}$$