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MATRIC NO: 19/ENG08/009

DEPARTMENT: BIOMEDICAL ENGINEERING

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CASE A: Initial = 50

CASE B: Initial = 150

$$y = y_0 e^{kt} \quad y = y_0 e^{kt}$$

A: When $t=0$

$$50 = y_0 e^{k(0)}$$

$$50 = y_0 \times 1$$

$$y_0 = 50$$

When $t=9$

$$y = 50 e^{9k}$$

$$y = 3 \times y_0 = 3 \times 50$$

$$y = 150$$

$$150 = 50 e^{9k}$$

$$\frac{150}{50} = e^{9k} \quad \therefore 3 = e^{9k}$$

$$\ln(3) = 9k$$

$$k = \frac{\ln(3)}{9} = \frac{1.0986}{9} = 0.122$$

B: When $t=0$, $y_0 = 150$

When $t=9$, $y = 3 \times y_0 = 3 \times 150 = 450$

$$\frac{450}{150} = e^{9k}$$

$$k = 0.122$$

$$A: y(t) = 50 e^{0.122t}$$

$$B: g(t) = 150 e^{0.122t}$$

For time (0 to 15 hours)

