

# Question 1

$$T_1 \text{ of thermometer} = 10^\circ\text{C}$$

$$T_2 \text{ of thermometer} = 20^\circ\text{C} \text{ at}$$

$$\text{Time taken} = 5 \text{ minutes} = 300 \text{ seconds}$$

$$10^\circ\text{C at } 0 \text{ sec}$$

$$20^\circ\text{C at } 300 \text{ sec}$$

$$\Delta T = 20 - 10 = 10^\circ\text{C}$$

$$\text{Find } T = 24.9^\circ\text{C} \quad \Delta T_c = 24.9 - 10 = 14.9^\circ\text{C}$$

$$10^\circ\text{C to } 300 \text{ sec}$$

$$14.9^\circ\text{C to } x$$

$$10x \text{ to } 300 \times 14.9$$

$$10x = 4470$$

$$10x = 447$$

$$x = 44.7 \text{ seconds}$$

$$x = 7 \text{ minutes } 27 \text{ seconds}$$

$$\text{Initial temp (IT)} = 10^{\circ}\text{C}$$

$$\text{Second temp (ST)} = 20^{\circ}\text{C}$$

$$\text{Time from IT to ST} = 5 \text{ mins} = 300 \text{ sec}$$

$$\text{Actual Temp (AT)} = 25^{\circ}\text{C}$$

$$\text{Soil Temp (CT)} = 24.9^{\circ}\text{C}$$

$$2 \text{ Time (2T)} = ??$$

$$\text{if from IT to ST} = 20^{\circ}\text{C} - 10^{\circ}\text{C} = 10^{\circ}\text{C}$$

and it take 5 mins to cover  $10^{\circ}\text{C}$   $\therefore$

$$5^{\circ}\text{C} = \frac{1}{2} \text{ of } 5 \text{ mins}$$

$$= 5^{\circ}\text{C} = 2.5 \text{ mins (to move from } 20^{\circ}\text{C to } 25^{\circ}\text{C)}$$

$$25^{\circ}\text{C} = 2.5 \text{ m}$$

$$\therefore 24.9^{\circ}\text{C} = ?$$

$$= \frac{2.5 \times 24.9}{2.5} \quad \left( 2.5 \text{ min} = 150 \text{ sec} \right)$$

$$= \frac{150}{2.5} \times 24.9 = 6 \times 24.9 = 149.4$$

$$\therefore 149.4 \div 60$$

$$= 2.49 = 2 \text{ mins } 49 \text{ sec}$$

```
- commandwindow
- clear
- clc
- close all
- format short g
- mdata=xlsread('onlinequizdata','fluiddata')
- x=mdata(1:2:250,1)
- y=mdata(1:2:250,2)
- plot(x,y)
- grid on
- grid minor
```

I

Command Window

```
86
88
90
92
94
96
98
100
102
```

script

Ln 11 Col

