

6a) Absolute Error ( $E_A$ )

$$E_A = |X - x|$$

i)  $V_T = 5,86593, V_A = 5,866$

T means True Value  
A means Approximate value

$$E_A = |5,866 - 5,86593|$$

$$\Rightarrow 0,00007$$

ii)  $E_A = |2,556 - 2,55555|$

$$\Rightarrow 0,00045$$

iii)  $E_A \Rightarrow |9,757 - 9,75600|$

$$\Rightarrow 0,001$$

b)  $E_A = 0,510^{-3}$

$$E_R = 0,3710^{-5}$$

$$V_T \Rightarrow E_R = \frac{E_A}{V_A}$$

$$V_A = \frac{E_A}{E_R}$$

$$V_A = \frac{0,510^{-3}}{0,3710^{-5}} \Rightarrow 0,05298574$$

$$E_A = V_A - V_T$$

$$\Rightarrow V_A - E_A$$

$$\Rightarrow 0,05298574 - 0,510^{-3} \Rightarrow 7,48559293$$

Relative error ( $E_R$ )  $\Rightarrow \frac{E_A}{X} \Rightarrow \frac{E_A}{V_A}$

i)  $E_R \Rightarrow \frac{0,00007}{5,866} \Rightarrow 0,00001193$

ii)  $E_R \Rightarrow \frac{0,00045}{2,556} \Rightarrow 0,00017605$

iii)  $E_R \Rightarrow \frac{0,001}{9,757} \Rightarrow 0,00010249$

Percentage error ( $E_P$ )  $\Rightarrow E_R \times 100$

i)  $0,00001193 \cdot 100 \Rightarrow 0,001193\%$

ii)  $0,00017605 \cdot 100 \Rightarrow 0,017605\%$

iii)  $0,00010249 \cdot 100 \Rightarrow 0,010249\%$

c)  $V_A = 0,468$   
 $E_P = 6\%$   
 $V_T = ?$

$$E_R = \frac{E_P}{100}$$

$$\Rightarrow \frac{6\%}{100\%} \Rightarrow 0,06$$

$$E_A = E_R(V_A)$$

$$\Rightarrow 0,06 \cdot 0,468$$

$$\Rightarrow 0,02808$$

$$\therefore E_A = |V_A - V_T|$$

$$V_T \Rightarrow |V_A - E_A|$$

$$\Rightarrow 0,468 - 0,02808$$

$$V_T \Rightarrow 0,43992$$

6 a) Absolute Error ( $E_A$ )

$$E_A = |X - x|$$

(i)  $V_T = 5,86593, V_A = 5,866$

T means True Value

A means Approximate value.

$$\therefore E_A = |5,866 - 5,86593|$$
$$\Rightarrow \underline{\underline{0,00007}}$$

ii)  $E_A = |2,556 - 2,55555|$

$$\Rightarrow \underline{\underline{0,00045}}$$

iii)  $E_A \Rightarrow |9,757 - 9,75600|$

$$\Rightarrow \underline{\underline{0,001}}$$