

PERCENTAGE ERROR:

- **For acceleration due to gravity:**

Standard value of acceleration due to gravity, $g = \dots \dots \dots$

Observed value of acceleration due to gravity, $g = \dots \dots \dots$

$$\text{Therefore, \% error} = \left| \frac{\text{Standard value} - \text{observed value}}{\text{standard value}} \right| \times 100\%$$

$$= \dots \dots \dots$$

$$= \dots \dots \dots \%$$

- **For effective length of second pendulum:**

Standard value of length of second pendulum, $L_s = \dots \dots \dots$

Observed value of length of second pendulum, $L_s = \dots \dots \dots$

$$\text{Therefore, \% error} = \left| \frac{\text{Standard value} - \text{observe value}}{\text{standard value}} \right| \times 100\%$$

$$= \dots \dots \dots$$

$$= \dots \dots \dots \%$$

RESULT:

The acceleration due to gravity and effective length of second pendulum has been found to be $\dots \dots \dots \text{ cm/s}^2$ and $\dots \dots \dots \text{ cm}$ with $\dots \dots \dots \%$ and $\dots \dots \dots \%$ error respectively.

CONCLUSION:

Thus, the value of acceleration due to gravity and the effective length of second pendulum has been determined in laboratory by using simple pendulum.

SOURCES OF ERROR:

1. The experimental bob is not a point mass and may not be perfectly spherical.
2. The thread may not be weightless and inextensible.
3. The error may be due to large displacement (amplitude) of the bob.
4. The error may be due to the air resistance.
5. Error may be due to carelessness of experimenter.

PRECAUTIONS:

1. The bob should be small and perfectly spherical.
2. The string should be thin and inextensible.
3. The amplitude of oscillation should be small.
4. The bob should oscillate along a straight line without jerky motion.
5. The stop watch should be started and stopped carefully.
6. Graph should be plotted with proper scaling and with great care.