

### Experiment no 09.

**AIM:** To conduct experiment of trifilar suspension.

**APPARATUS REQUIRED:** Main frame, Trifilar suspension, Weights, Stopwatch, Thread.

#### INTRODUCTION:

**Trifilar Suspension (Torsional Pendulum) :-** It is also used to find the moment of inertia of a body experimentally. The body (say a disc or flywheel) whose moment of inertia is to be determined is suspended by three long flexible wires A, B and C, as shown in fig.-b. When the body is twisted about its axis through a small angle  $\theta$  and then released, it will oscillate with simple harmonic motion. Trifilar suspension is a disc of mass  $m$  (weight  $w$ ) suspended by three vertical cords, each of length  $l$ , from a fixed support. Each cord is symmetrically attached to the disc at the same distance  $r$  from the mass of the disc.

#### THEORY:

The disc is now turned through a small angle its vertical axis, the cords become inclined. On being released the disc will perform oscillations about the vertical axis. At any instant

Let:  $\theta$  = angular displacement of the disc

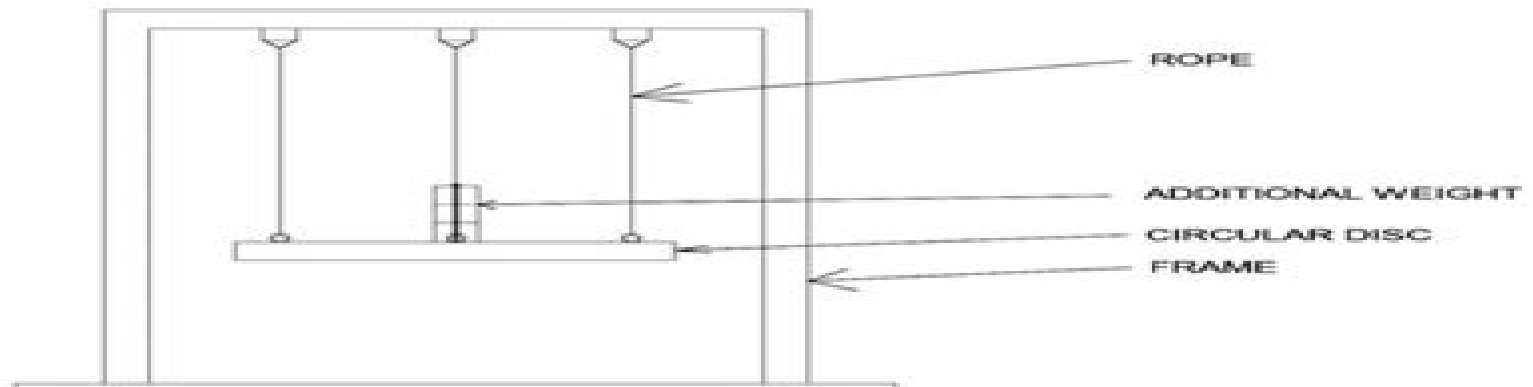
$F$  = tension in each cord  $= w/3$

Inertia torque  $= I \times \alpha$

Restoring torque  $= 3 \times \text{horizontal component forces of each string} \times r$

Inertia torque = restoring torque

### TRIFILAR



# Mechanical Vibration Lab Manual

**Huangqi Zhang**



## **Mechanical Vibration Lab Manual:**

## **Mechanical Vibration Lab Manual** Book Review: Unveiling the Magic of Language

In an electronic era where connections and knowledge reign supreme, the enchanting power of language has become more apparent than ever. Its power to stir emotions, provoke thought, and instigate transformation is really remarkable. This extraordinary book, aptly titled "**Mechanical Vibration Lab Manual**," written by a very acclaimed author, immerses readers in a captivating exploration of the significance of language and its profound impact on our existence. Throughout this critique, we shall delve into the book's central themes, evaluate its unique writing style, and assess its overall influence on its readership.

<https://staging.conocer.cide.edu/files/browse/HomePages/facing%20the%20reality%20of%20communication%20culture%20church%20and%20communication.pdf>

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