

Lab Manual

EXPERIMENT NO. 3

Objective:

To measure the support reactions for a variety of configuration of simply supported beam.

Apparatus:

Simple supported beam apparatus, Hanger and weights, Meter rod.

Summary of Theory:

Theory of the Experiment includes the following topics.

- Reactions & Types of Reactions
- Load & Types of Load
- Beams & Types of Beams

Procedure:

1. Set the Beam apparatus on a horizontal surface.
2. Set the digital balance weight at zero.
3. Apply a loads at different points and measure the readings
4. Take a set of at least five readings of increasing value of load and then take readings on unloading as well.

Observations and Calculations:

Least Count of the meter rod = _____ mm

Effective length of beam (L) = _____ mm

| No. of Obs. | Effective Load-W (N) | | | Experimental values | | Theoretical values | | % error |
|-------------|-------------------------|----------------|----------------|---------------------|--------------------|--------------------|--------------------|-----------------|
| | | | | R _A (N) | R _B (N) | R _A (N) | R _B (N) | Th – Pr/Th x100 |
| | P ₁ | P ₂ | P ₃ | | | | | |
| 1 | | | | | | | | |
| 2 | | | | | | | | |
| 3 | | | | | | | | |
| 4 | | | | | | | | |
| 5 | | | | | | | | |
| 6 | | | | | | | | |

Name: _____

Reg. # _____

Date:

Report:

The laboratory report should contain the following:

1. Plot of curve between Load and Reaction .Calculate the slope of the graph.
2. Hand calculations showing all results under procedure above.
3. A discussion of factors affecting the results of the experiment.
4. Practical Applications