



Fig. (a) Simple Pendulum.

(b) Effective length of simple pendulum, $l = l' + h + r$.

(c) Marks on thread.

Pendulum

in simple way



Class 11 Physics Pendulum Practical

Austin Guildford Schmidt



Class 11 Physics Pendulum Practical:

Practical/Laboratory Manual Physics Class XI based on NCERT guidelines by Dr. J. P. Goel & Er. Meera Goyal Dr. J. P. Goel ,Er. Meera Goyal,2020-06-26

EXPERIMENTS

1 Measurement of Length 1 To measure the diameter of a small spherical cylindrical body by using a vernier callipers 2 To measure the dimensions of a given regular body of known mass using vernier callipers and hence find its density 3 To measure the internal diameter and depth of a given cylindrical vessel say calorimeter beaker by using vernier callipers and hence find its internal volume i e capacity Viva voce 2 Screw Gauge Micrometer 4 To determine the diameter of a given wire using a screw gauge and find its volume 5 To find the thickness of a given sheet with the help of screw gauge 6 To measure the volume of an irregular lamina by using a screw gauge Viva voce 3 Spherometer 7 To measure the radius of curvature of a given spherical surface convex lens by using a spherometer Viva voce 4 Mass and Weight 8 To determine the mass of two different objects using a beam balance Viva voce 5 Parallelogram Law of Vectors 9 To find the weight of a given body using parallelogram law of vectors Viva voce 6 Simple Pendulum Measurement of Time 10 Using a simple pendulum plot L T and L T^2 graphs Hence find the effective length of a second s pendulum using appropriate graphs Viva voce 7 Friction 11 To study the relationship between force of limiting friction and normal reaction and to find the coefficient of friction between a block and a horizontal surface Viva voce 8 Motion of a Body Along an Inclined Plane 12 To find the downward force along an inclined plane acting on a roller due to gravitational pull of the earth and study its relationship with the angle of inclination by plotting graph between force and \sin Viva voce

SECTION B EXPERIMENTS

1 Elasticity 1 To determine the Young s modulus of elasticity of the material of the wire using Searle s apparatus Viva voce 2 Spring Constant 2 To find the spring constant of a helical spring by plotting load extension graph Viva voce 3 Boyle s Gas Law 3 To study the variation in volume with pressure for a sample of air constant temperature by plotting graphs between P and V and between P and $1/V$ 18 Viva voce 4 Surface Tension 4 To determine the surface tension of water by capillary rise method Viva voce 5 Viscosity 5 To determine the co effective of viscosity of given liquid by measuring the terminal velocity of a given spherical body in it Viva voce 6 Newton s Law of Cooling 6 To study the relationship between temperature of a hot body and time by plotting a cooling curv Viva voce 7 Vibrations of Strings 7 To study the relation between frequency and length for a given wire under constant tension using a sonometer Viva voce 8 To study the relation between the length of a given wire and tension for constant frequency using sonometer Viva voce 8 Vibrations of Air Columns 9 To find the velocity of sound in air at room temperature using a resonance tube by two resonance position Viva voce 9 Specific Heat 10 To determine specific heat of a given solid by the method of mixture 11 To determine the specific heat of a given liquid by method of mixture Viva voce

SECTION A ACTIVITIES

1 To make a paper scale of given least count e g 0 2 cm 0 5 cm and use it to measure the length of a given object 2 To determine the mass of a given body using a metre scale and by applying principle of moments Viva voce 3 To plot a graph for a given set of data using proper choice of scales and error bars Viva

voce 4 To measure the force of limiting friction for rolling of a roller on horizontal plane Viva voce 5 To study the variation in the range of a jet of water with angle of projection Viva voce 6 To study the conservation of energy of a ball rolling down on inclined plane using a double inclined plane Viva voce 7 To study dissipation of energy of a simple pendulum by plotting a graph between square of amplitude and time Viva voce SECTION B ACTIVITIES 1 To observe the change of the state and plot a cooling curve for molten wax Viva voce 2 To observe and explain the effect of heating on a bimetallic strip Viva voce 3 To note the change in level of liquid in a container on heating and interpret the observations Viva voce 4 To study the effect of detergent in surface tension by observing capillary rise Viva voce 5 To study the factors affecting the rate of loss of heat of a liquid Viva voce 6 To study the effect of load on depression of a suitably clamped meter scale loaded i at its end ii in the middle Viva voce 7 To observe the decrease in pressure with the increase in velocity of the fluid Viva voce APPENDIX Some Important Tables of Physical Constants Log Antilog and other Tables

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