2018

CBCS

1st Semester

PHYSICS

PAPER—C2P

(Honours)

Full Marks : 20

Time : 1 Hours

The figures in the right-hand margin indicate full marks.

Candidates are required to give their answers in their own words as far as practicable.

Illustrate the answers wherever necessary.

1. To determine the Moment of Inertia of Flywheel.

(a) Working formula. 3

(b) Data for the radius of the shaft by slide Calliperse (find v.c. for slide Calilperse) 1+2

(c) Data for h by meter scale. 1

(d) Data for time of fall two different loads. 3

(e) Data for number of rotation of the fly wheel. 3

(f) Calculate the moment of inertia. 2

2. To determine the Modulus of Rigidily of a wire by Maxwell's needle (Length of the wire will be supplied)

(a) Working principal. 3

(b) Data for the radious of wire by screw gauge. (Determine least count for screw gauge) 1+2

(c) Determine the mass of the hollow and solid cylinder. 2

(d) Data for time periods for solid cylinders outside the needle and inside the needle (T_1 and T_2) [Measure time for at least 10 oscillations for three observation) 6

(e) Calculation of rigidily modulus.

3. To determine the young's Modulus of a wire by optical Lever method. (length of the arm of a optical lever are to be supplied)

(a) Working principal. 3

(b) Data for the radious of wire by screw gauge. 1+2

(c) Data for fire leads depression graph by optical lever method. 5

(d) Draw load depression graph. 2

(e) Calculation young's Modulus (Y) from graph. 2

4. To measure the internal diameter of a capilary table.

(a) Screw-gauge and Travellings microscope. 3

(b) Data for least Count of Screw gause. 2

(c) Data for diameter by screw gause. 3

(d) Data for Vernier constant of travelling microscope. 7

5. To determine g by Bar Pendulum.

(a) Working principal. 3

(b) Data T vs. d graph [measure time at least 15 oscillations] 7

(c) Draw graph for T vs. d. 3

(d) Calculation of g from graph. 2

6. To determine the elastic constants of a wire by Searle's method. [Length and depth of bars will be supplied]

(a) Working formula for γ, η and σ. 4

(b) Data for the radious of the wire by Screw gauge. 1+2

(Continued)

(c) Data for Time periods of vertical and horizontal oscillations. (At least 20 oscillations for each) 5

(d) Calculation of γ, η and σ. 3

7. To determine the value of g using Kater's pendulum.

(a) Working principal. 3

(b) Preliminary records of times of oscillations during adjustment of positions of the cylinders. 5

(c) Data for final time periods T_1 and T_2. 3

(d) Data for distances l_1 and l_2. 2

(e) Calculation of g. 2

8. To determine g and velocity for a freely falling body using digital Timing Technique.

(a) *Theory and working* formula. 3

(b) Recording of height and time (T) of free falling for fire different heights for first body. 3

(c) Recording of same for second body of different mass. 3

(d) Graphs of height (h) vs. T^2 2

(e) Determined g from graph. 2

(f) Calculation of velocity of falling when touches the surface for both mass (Take and height (h)) 2

9. Determine the height of a vertical distance between two points using sextant.

(a) Working formula 2

(b) Vernier constant. 2

(c) Reading of base point and vertical point for three horizontal distance (d) [by measuring tape or meter scale] 6

(d) Table for $\tan\theta$ vs $\frac{1}{d}$ graph and plot of the graph.

1+2

(e) Calculations of height (h) the graph. 2

10. To determine coefficient to Viscerity of water by capillary flow method (Poiseuille's Method)

(a) Working formula. 3

(b) Data record for h. 6

(c) Calculation with necessary plots. 6

Marks Distribution :

Experiment	= 15
LNB	= 02
Viva-Voce	= 03
Total	= 20