Total Pages—7

UG/1st Sem/PHS(H)/Pr/19

2019

B.Sc.

1st Semester Examination

PHYSICS (Honours)

Paper—C 2-P

Full Marks : 20 Time : 3 Hours

The figures in the margin indicate full marks.
Candidates are required to give their answers in their own words as far as practicable.

1. Determine the Moment of Inertia of Flywheel.

(a) Working Formala. 3

(b) Data for the radius of the shaft by slide calliperse (Find v.c. for slide calliperse) 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 flywheel. 3

(f) Calculate the moment of Inertia. 2

[Turn Over]

2/32-2600

2. 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 period for solid cylinders outside the needle and inside the needle (T_1 and T_2) [Measure time for at least 10 oscillation for three observation] 6

(e) Calculate of rigidity modulus. 1

3. 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 principle. 3

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

(c) Data for load depression graph (5 loads) by optical lever method. 5

(d) Draw load depression graph. 2

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

4. Measure the internal diameter of a capillary Tube.

(a) Screw-gauge and Travelling microscope. 3

(b) Data for least count of screw gauge. 2

(c) Data for diameter by screw gauge. 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

[Turn Over]

(c) Draw graph for T vs d. 3

(d) Calculation of g from graph. 2

6. 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 radius of the wire by screw-gauge. 1+2

(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. Determine the value of g using Keter's Pendulum.

(a) Working formula. 3

(b) Preliminary records of times of oscillations during adiustment of positions of 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 five 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

6. (b) Vernier constant. 2

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

(d) Table for $\tan\theta$ vs $\frac{l}{d}$ graph and plot of the graph. 1+2

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

10. Determine co-efficient to viscosity 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

Distribution of Marks

Experiment	15 marks
Laboratary Note book	02 marks
Viva voce	03 marks
Total	20 marks

2/32-2600