

Total Pages-7

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

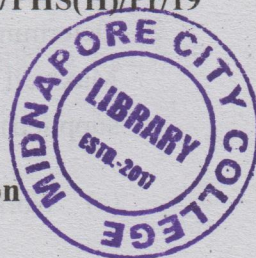
2019

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 Formula. | 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 |

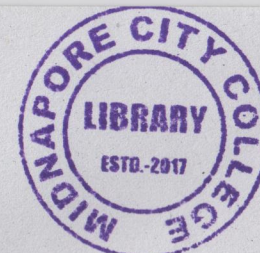
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(2)

2. Determine the Modulus of Rigidity of a wire by Maxwell's needle (Length of the wire will be supplied)
- (a) Working Principal 3
 - (b) Data for the radius 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

(3)

- (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



(4)

- (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 Kater's Pendulum.
 - (a) Working formula. 3
 - (b) Preliminary records of times of oscillations during adjustment of positions of cylinders. 5

(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



(6)

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 metre scale] 6

(d) Table for $\tan \theta$ vs $\frac{1}{d}$ 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

(7)

Distribution of Marks

Experiment 15 marks

Laboratory Note book 02 marks

Viva voce 03 marks

Total 20 marks
