

B.Sc. Semester-I Examination, 2021

Subject: Physics General (PHSG)

Paper: CC1/GE1

Answer scripts (pdf format) to be submitted at:

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F.M. : 30 Time: 1.5 hours

Answer any one question

1. (a) Write down the theory (with working formula) to determine the moment of inertia of a metallic cylinder about an axis passing through its C.G. and perpendicular to its length. [10]
- (b) Define moment of inertia and radius of gyration. Give its unit. [8]
- (c) Does the moment of inertia of the body depend on its axis of rotation? [3]
- (d) Is the motion of the Torsional oscillations a simple harmonic motion? [2]
- (e) Write down the formula of moment of inertia if the cylinder is kept vertically. [2]
- (f) How do the pendulum and torsional oscillations differ? [3]
- (g) Does the period of torsional oscillation depend on acceleration of the gravity? [2]
- 2.(a) What is elasticity? Define Young's modulus. [5]
- (b) Write down the theory for determination of Young's modulus of a metal bar by method of flexure. [10]
- (c) Draw the applied load vs elongation curve as you expected from this experiment. [3]
- (d) If you do the same experiment with a bar of different length, breadth and depth would your result be different? Explain. [3]
- (e) Why breadth is measured by slide callipers but depth by a screw gauge? [3]
- (f) What is vernier constant of slide callipers? Also define least count of a screw gauge. [4]
- (g) State Hooke's law. [2]