[This question paper contains 2 printed pages.]

Sr. No. of Question Paper : 8385   C   Roll No..............

Unique Paper Code   : 222102

Name of the Paper   : (PHHP–I) Physics Lab – I

Name of the Course   : B.Sc. (Hons.) Physics, Part I

Semester   : I

Duration   : 1 Hour

Maximum Marks   : 20

Instructions for Candidates

1. Write your Roll No. on the top immediately on receipt of this question paper.

2. Attempt any **20** questions.

3. **All** questions carry equal marks.

1. Define standard deviation. How it is related to probable error ?

2. What are basic components of CRO ?

3. Write the colour code of a resistance of value $730\,k\Omega \pm 5\%$.

4. The diameter of sphere is measured 5 times by using vernier callipers. The readings (in mm) are: 2.7, 2.3, 2.4, 2.6 and 2.5. Find the standard deviation.

5. In a screw gauge, distance moved on main scale is 1mm in 5 rotations. What is the pitch of the screw gauge ?

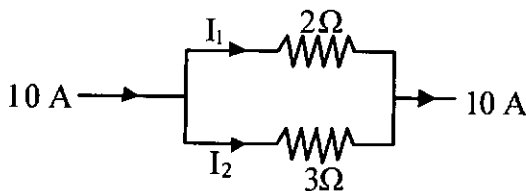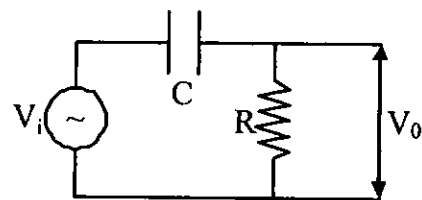6. Find the currents I_1 and I_2 in Fig. (1).

Fig. (1)

Fig. (2)

P.T.O.

7.   In Fig. (2), ω is the angular frequency of input voltage V_i. Find the ratio V_0/V_i.

8.   Why does capacitor behaves like open circuit at very low frequencies ?

9.   In Poiseuille's method, if length of capillary tube is doubled, then how the viscosity of liquid will change ?

10. In which part of the experiment of Searle's Method, Modulus of Rigidity is involved ? And how ?

11. What are the uses of CRO ?

12. Prove that reflected ray rotates by an angle 2θ, if mirror rotates by angle θ.

13. How does the time period varies with moment of inertia in case of Maxwell's Needle experiment ?

14. Define Modulus of Rigidity and Bulk Modulus. Also give their SI units.

15. In Maxwell's Needle experiment, if radius of wire is doubled then what will be its effect on η ?

16. Give the difference between 'g' and 'G' and write their SI units.

17. Why is the mass of flywheel mostly concentrated in its rim ?

18. What is the radius of gyration of a uniform hollow sphere (radius = r) when axis passes through its centre ?

19. Can we use a tube of large bore instead of a capillary tube in Poiseuille's experiment ? And why ?

20. Why it is necessary to keep the tube horizontal in Maxwell's needle experiment ?

21. What is Gaussian law of distribution of random errors ?

22. Why does the time period change on interchanging the position of hollow and solid cylinders in Maxwell's needle experiment ?

23. What is back-lash error in a screw gauge ? How it can be avoided ?

24. How will you differentiate between a microscope and telescope ?