U.G. 1st Semester Examination - 2021
PHYSICS
[HONOURS]
Course Code : PHYS-H-CC-P-02
(Mechanics)
[PRACTICAL]

Full Marks : 20   Time : 2 Hours

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

Answer any **two** questions: 10×2=20

1.   If the pitch p=1 mm and the number of divisions in the circular scale be N = 100 then calculate the least count of the instrument. Explain the positive or negative errors of an instrument. Only make a table to determine the length of a small rod by using slide calipers (No data required). What minimum length can be measured by slide calipers?   2+2+4+2

2.   What do you mean by stress and strain? The Young's Modulus of a material is given by $Y = \dfrac{gL^3}{4bd^3}\left(\dfrac{M}{l}\right)$.

Terms are as usual. Calculate the expression for

[Turn over]

maximum proportional error. In determining the Young's modulus of a material, which quantity should be measured very carefully? Suppose you determine the Young's modulus of a material Y. If the breadth b and depth d are made double of the same material what will Young's modulus of the second body be? Explain.
2+4+2+2

3.   What do you mean by centre of suspension and centre of oscillation? What would happen if the centre of suspension coincides with the centre of gravity? If n represents frequency and L represents the length of a string, then draw frequency versus $\dfrac{1}{L}$ graph. (Assume the mass of the string and Tension are constant)
(2+2)+2+4

4.   Can you measure the coefficient of viscosity of water by Stoke's method? Explain. What is the coefficient of viscosity? What is the difference between streamline and turbulent motion? How does the coefficient of viscosity change with temperature? What are the chief sources of error in this experiment?
2+2+2+2+2

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