U.G. 3rd Semester Examination - 2021

PHYSICS

[HONOURS]

Course Code : PHYS-H-CC-P-06

(Thermal Physics)

[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.

GROUP-A

Answer any **four** questions: 2×4=8

1. a) Define thermal conductivity?

   b) State Newton's law of cooling.

   c) Why the name 'Optical Lever' is used?

   d) Resistance of a Pt-thermometer is given as R_0 (resistance at 0°C) = 2.57 Ω, R_{100} resistance at 100°C) = 3.57 Ω and R_t = 2.89 Ω. Calculate *t* on platinum scale and on Celsius scale.

   e) What do you mean by thermo-emf?

   f) What are the differences between a bad conductor and an insulator?

GROUP-B

Answer any **three** questions: 4×3=12

2. a) What is Bedford's correction?

   b) Write S.I. unit of thermal conductivity. 3+1

3. a) What is the coefficient of thermal expansion?

   b) Write the relation between thermal conductivity and thermometric conductivity. 2+2

4. Briefly describe the experimental arrangement (with necessary diagram) and the basic principle of Lee's method. At what temperature, do we find the rate of radiation? 1+3

5. a) Write two advantages of Platinum Resistance Thermometer.

   b) How does a Platinum Resistance Thermometer work? 2+2

6. Write down the working formula for the measurement of the coefficient of thermal conductivity for a material used in Searle's method. Briefly describe the working principle (with the necessary diagram) to illustrate the method. 1+3

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