

SHRIMATHI DEVKUNVAR NANALAL BHATT VAISHNAV COLLEGE FOR WOMEN
(AUTONOMOUS)

(Affiliated to the University of Madras and Re-accredited with 'A+' Grade by NAAC)
Chromepet, Chennai — 600 044.

B.Sc. END SEMESTER EXAMINATIONS NOVEMBER-2022
SEMESTER - I

22UPHCT1002- Thermal Physics

Total Duration : 2 Hrs 30 Mins.

Total Marks : 60

Section A

Answer any **SIX** questions ($6 \times 5 = 30$ Marks)

1. What are the types of thermometers? Describe any one of them.
2. Describe the effects of chlorofluorocarbon on ozone layer.
3. Discuss the experiment of "method of mixtures" to estimate the specific heat capacity of a liquid.
4. State and derive Dulong and Petit's law.
5. Describe how equilibrium is maintained in the atmosphere by convection.
6. Obtain an equation for the coefficient of thermal conductivity.
7. What is a blackbody? Brief on the distribution of energy in a blackbody radiation.
8. State and explain Rayleigh – Jean's law.

Section B

Answer any **THREE** questions ($3 \times 10 = 30$ Marks)

9. Discuss in detail the Joule – Thomson effect using Porous plug experiment.
10. Explain the Regnault's method to find the specific heat capacity of a gas at constant pressure.
11. Discuss any two applications of convection.
12. With the help of a neat diagram, explain in detail the Lee's disc method to find out the thermal conductivity of a bad conductor.
13. State Stefan's law. Explain how it is verified and obtain an expression to determine Stefan's constant.
