

Roll.No.

22UPHCT1002

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.Physics - END SEMESTER EXAMINATIONS - NOVEMBER 2025

SEMESTER - I

22UPHCT1002 - Thermal Physics

Total Duration : 2 Hrs.30 Mins.

Total Marks : 60

Section B

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

1. Distinguish the effects of land and sea breezes with their real time effects in association with the convection of winds.
2. Calculate the specific heat capacity of gases by Regnault's method.
3. Relate the effects arising from the CF_2CI_2 on the ozone layer.
4. Interpret with an example, the theory behind the thermal conductivity arising from a poor conductor.
5. Explain with a neat sketch, the porous plug experiment with a detailed theoretical approach.
6. Using the phenomenon of black body radiation, explain the concept of radiation.
7. Discuss the rectilinear flow of heat along the bar.
8. Interpret the derivations of Dulong and Petits law.

Section C

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

9. With a neat sketch, elucidate the working, advantage and disadvantages of Callender and Griffith's bridge.
10. Derive the Mayer's relations between C_p and C_v .
11. Explain : (i) Coefficient of thermal conductivity, and (ii) Rectilinear flow of heat along a bar.
12. Discuss in detail about the various applications of convection and ventilation.
13. Explain the importance of Stefan's law and determine the Stefan's constant.
