

23U607

(Pages: 2)

Name:

Reg.No:

SIXTH SEMESTER B.Sc. DEGREE EXAMINATION, APRIL 2026

(CBCSS - UG)

(Regular/Supplementary/Improvement)

CC19UPHY6B10 / CC20UPHY6B10 - THERMODYNAMICS

(Physics - Core Course)

(2019 Admission onwards)

Time : 2.00 Hours

Maximum : 60 Marks

Credit : 3

Part A (Short answer questions)

Answer *all* questions. Each question carries 2 marks.

1. State zeroth law of thermodynamics.
2. What is the limitation of equation of state?
3. Distinguish between work and heat.
4. Define molar specific heat capacity.
5. What is meant by adiabatic free expansion?
6. Give two examples each of internal and external combustion engines.
7. Define absolute zero of thermodynamic scale.
8. Express entropy change of ideal gas in terms of temperature and pressure.
9. In general isentropic does not mean that adiabatic. Justify.
10. What is meant by entropy principle?
11. Discuss the conditions for exact differential.
12. Distinguish between PT and PV diagrams.

(Ceiling: 20 Marks)

Part B (Short essay questions - Paragraph)

Answer *all* questions. Each question carries 5 marks.

13. Distinguish between macroscopic and microscopic points of view.
14. Derive the equation of state of a quasi-static adiabatic process.
15. Prove that the Kelvin-Planck and Clausius statements are equivalent.
16. Explain the Carnot cycle with a neat diagram.

17. Derive the expression for the change in entropy of a perfect gas.
18. What is meant by Thermodynamic potentials. Explain its properties.
19. Calculate the melting point of ice under a pressure of 2 atmospheres. It is given that the melting point of ice under one atmospheric pressure is 273.16 K. Latent heat of fusion of ice is 79.6 cal/g and at the melting point specific volume of ice is 1.0908 cc and that of water is 1.0001 cc. One atm = 1.013×10^6 dynes cm^{-2} .

(Ceiling: 30 Marks)

Part C (Essay questions)

Answer any *one* question. The question carries 10 marks.

20. Define quasi static process. Calculate the work done during quasi static isothermal process and Quasi static adiabatic process.
21. Discuss the first order phase transition in detail.

(1 × 10 = 10 Marks)
