20U606 (Pages: 2) Name: ....

Reg.No: ....

SIXTH SEMESTER B.Sc. DEGREE EXAMINATION, APRIL 2023
(CBCSS - UG)
(Regular/Supplementary/Improvement)
CC19U PHY6 B10 / CC20U PHY6 B10 - THERMODYNAMICS
(Physics - Core Course)
(2019, 2020 Admissions)

Time : 2.00 Hours   Maximum : 60 Marks

Credit : 3

Part A (Short answer questions)
Answer *all* questions. Each question carries 2 marks.

1. Write down the expression for work done by a hydrostatic system.

2. Define adiabatic wall and diathermic wall.

3. Define thermodynamic heat.

4. Write down the equations that ideal gas satisfy.

5. Give Planck's statement of second law of thermodynamics.

6. What is the principle of refrigerator?

7. Define absolute zero of thermodynamic scale.

8. Express entropy change of ideal gas in terms of pressure and temperature.

9. What is external mechanical irreversibility process?

10. What is enthalpy? Give two of its properties.

11. What is Hemholtz free energy? Give two of its properties.

12. What is the relation between Clausius-Clapeyron equation and phase diagram?

(Ceiling: 20 Marks)

Part B (Short essay questions - Paragraph)
Answer *all* questions. Each question carries 5 marks.

13. Establish the concept of temperature on the basis of zeroth law of thermodynamics.

14. Explain how do you check whether or not two beakers of water are in equilibrium using zeroth law of thermodynamics.

15. Distinguish between Reversible and Irreversible process.

16. What is a refrigerator? Explain the working of a refrigerator.

17. Derive an expression for the entropy of ideal gas in terms of temperature and volume.

18. Derive the Clausius - Clapeyron equation.

19. Discuss the Phase diagram for pure water in detail.

(Ceiling: 30 Marks)

Part C (Essay questions)

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

20. Starting from quasi static flow of heat explain how will you measure heat?

21. Explain the relation of entropy and irreversibilty by considering mechanical and thermal irreversibilities.

(1 × 10 = 10 Marks)

****