



## Shree H.N.Shukla group of colleges

PHYSICS

S.Y.B.Sc. (Sem. IV) (CBCS)

Unit Test examination

PAPER- 401

UNIT - 1 : LAWS OF THERMODYNAMIC

DATE :

TOTAL MARKS : 30

**Instructions:** All questions are compulsory.

The right side figure indicates total marks of the question.

Draw the figure wherever necessary.

Write answers of all the questions in main answer sheets.

### SECTION-A

**Q.1: One marks questions:**

**[5 MARKS ]**

- 1 Write the formula of efficiency for heat engine.
- 2 Write the Mayer's formula.
- 3 What is the value of "J"?
- 4 Write the equation of specific heat with unit.
- 5 Define : Adiabatic system.

### SECTION – B

**Q.2 (A): Short Questions: Write all three : [2 Marks each]**

**[6 MARKS]**

- 1 Find the efficiency of a Carnot's engine working between  $100^{\circ}\text{C}$  and  $0^{\circ}\text{C}$ .
- 2 Find the efficiency of a Carnot's engine working between  $127^{\circ}\text{C}$  and  $27^{\circ}\text{C}$ .
- 3 Define : Isothermal and Isochoric system

**Q.2 (B) : Short questions: Write all three: [3 Marks each]**

**[9 MARKS]**

- 1 Write the first law of thermodynamics and explain it.
- 2 State second law of thermodynamics of Lord Kelvin's and Planck's statement.
- 3 Explain work done during adiabatic process.

**Q.2 (C): Write Detail Note on [Any two]: [5 Marks each]**

**[10 MARKS]**

- 1 Write note on specific heat of a gas.
- 2 Give the statement of Carnot's theorem and its proof.
- 3 Explain : Carnot's cycle.
- 4 Explain Heat engine in detail.