

PSG COLLEGE OF ARTS & SCIENCE
(AUTONOMOUS)
BSc DEGREE EXAMINATION MAY 2018
(Second Semester)

Branch - PHYSICS

THERMAL & STATISTICAL PHYSICS

Time : Three Hours

Maximum ; 75 Marks

SECTION-A (20 Marks)

Answer ALL questions

ALL questions earn⁷ EQUAL marks

(10 x 2 = 20)

- 1 What is a liquid thermometer?
- 2 Write the principle of thermoelectric thermometer.
- 3 What is a Joule - Thomson effect⁹
- 4 Define super fluidity.
- 5 State thermal diffusivity.
- 6 Give any two applications of thermal radiation.
- 7 Define adiabatic process.
- 8 State third law of thermodynamics.
- 9 State Maxwell Boltzmann distribution law.
- 10 Write short note an electron gas.

SECTION - B (25 Marks)

Answer ALL Questions

ALL Questions Cam EQUAL Marks (5 x 5 = 25)

- 11 a Write a note on clinical thermometer.
OR
b With a neat sketch briefly explain the seeback effect.
- 12 a Explain briefly about the van der waals corrections. '
OR
b List out the properties of liquids Helium - II.
- 13 a Deduce Weidman Franz law for metals.
OR
b Derive an expression on Wien's law's black body radiation.
- 14 a Write a note on increase in Entropy.
OR
b State and explain the Carnot's theorem.
- 15 a Give an account on statistical thermodynamics theorem.
OR
b Write a note on limitations in Maxwell - Boltzmann method.

SECTION - C (30 Marks)

Answer any THREE Questions

ALL Questions Carry EQUAL Marks (3 x 10 = 30)

- 16 Describe the construction and working of platinum resistance thermometer with a neat diagram.
- 17 Explain in detail about Adiabatic demagnetization.
- 18 Derive an expression on Planck's radiation law.
- 19 Explain the Carnot's cycle with a suitable graphical diagram.
- 20 Obtain an expression on Bose - Einstein distribution law.

Z-Z-Z

END