PSG COLLEGE OF ARTS & SCIENCE
(AUTONOMOUS)

BSc DEGREE EXAMINATION MAY 2017
(Second Semester)

<   Branch - PHYSICS

THERMAL A STATISTICAL PHYSICS

Time : Three Hours   Maximum : 75 Marks

SECTION-A (20 Marks)
Answer ALL questions
ALL questions carry EQUAL marks   ($10 \times 2 = 20$)

1   Write the principle of platinum resistance thermometer.
2   State Seeback effect.
3   What do you mean by low temperature physics?   *
4   State the principle of refrigeration.   *
5   Define thermal convection.
6   State black body radiation.
7   What do you mean by reversible process?
8   State first law of thermodynamics.
9   Define statistical equilibrium.
10   What do you mean by phase space?

SECTION - B (25 Marks!
Answer ALL Questions
• ALL Questions Carry* EQUAL Marks ($5 \times 5 = 25$)

11 a Explain the corrections '& errors in mercury thermometer.
                OR
   b   Discuss the working of platinum resistance thermometer.

12 a   Explain the theory of liquefaction of hydrogen.
                OR
   b   Discuss the theory of porous plug experiment.

13 a Deduce Newton's law from Stefan's law.
                OR
   b Write short note on thermal conductivity.

14 a Explain shortly (1) Adiabatic (2) Isobaric (3) Isochoric process.
                OR   \
   b -Discuss the third law of thermodynamics.   ,

15 a Apply Fermi Dirac distribution law of an electron gas.
                OR
   b Derive an expression for Maxwell Boltzmann distribution law.

SECTION - C (30 Marks)
Answer any THREE Questions
ALL Questions Carry EQUAL Marks ($3 \times 10 = 30$)

16   Explain the construction & working of thermoelectric thermometer. .

17   Discuss the correction of pressure and volume from Vander Waals equation.

18   Calculate the value of K in thermal conductivity using Forbes method.

19   Explain Carnot's theorem in detail.

20   Obtain the expression for Bose - Einsten distribution law.