1212-16-468-012

Code No. 7061 / E

FACULTY OF SCIENCE

B.Sc. (CBCS) III – Semester Examination, November / December 2017

Subject: PHYSICS

Paper – III
Thermodynamics

Time : 3 hours **Max. Marks: 80**

Part – A (5 X 4 = 20 Marks)
(Short Answer Type)

Answer any Five of the following questions.

1 Explain briefly the Maxwell distribution of molecular speed.
2 Write a note on entropy and disorder.
3 What are thermodynamic potentials? What is the importance of these potentials?
4 What is adiabatic demagnetization? Explain in brief.
5 Deduce the Plank's energy distribution formula.
6 What is radiation pyrometer? What are its uses?
7 What is phase space? Explain.
8 Mention few applications of Fermi-Dirac statistics.

Part – B (4 X 15 = 60 Marks)
(Essay Answer Type)

Answer ALL questions from the following:

9 a) Define Entropy. What is its physical significance write a note on entropy change in reversible and irreversible process.

OR

b) Give Kelvin-Plank and claussius statements of the second law of thermodynamics and show their equivalence.

10 a) State and explain Joule-Kelvin effect? Obtain an expression for Joule-Kelvin coefficient.

OR

b) How are low temperatures produced by adiabatic demagnetization? Give the theory.

11 a) What are the salient features of Wien's law and Rayleigh Jeans law concerning black body radiation?

OR

b) Describe the working of Angstrom's pyroheliometer to determine the solar constant.

12 a) Discuss Bose-Einstein distribution law. Mention applications of B-E statistics.

OR

b) Discuss classical and quantum statistics and mention their differences. Explain the concept of probability.

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