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B.Sc. 3rd Semester (Hons) New Scheme Examination,
December-2015

PHYSICS

Paper-PHY-302

Thermal Physics-I

Time allowed : 3 hours]

[Maximum marks : 40

Note : Attempt five questions in all. All questions carry equal marks. Attempt at least two questions from each unit.

Unit-I

1. What do you mean by Brownian's motion and explain sedimentation. 8
2. Derive Maxwell's law of distribution of velocities and give its experimental verification. 8
3. Write notes on :
 - (a) Transport Phenomenon. 4
 - (b) Viscosity. 4
4. Give theory of Langevin and explain experimental determination of Avogadro's number. 8

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Unit-II

5. Write notes on :
- (a) Critical constants and law of corresponding states. 4
 - (b) Entropy. 4
6. Describe Andrew's experiment on CO_2 and discuss its results. 8
7. (a) Explain internal Energy. 2
- (b) What do you mean by Isothermal and Adiabatic process ? 3
- (c) If we add 30 J of heat to 10 gm of Aluminum, by how much will the temperature increase. Specific heat of Aluminum is $0.902 \text{ J/g}^\circ\text{C}$. 3
8. Discuss and derive van der Waals equation. 8

92032

