

**Avinashilingam Institute for Home Science and Higher Education for Women
Coimbatore-641 043**

**Bachelor's Degree Examination – November 2017
I Semester**

**Class : I UG
Major : Physics**

**Time: 3 hours
Max. Marks: 100**

15BPHC02 Heat and Thermodynamics

Part-A

10 x 1=10

Choose the correct answer

1. ----- is defined as energy in transit.
a. Temperature b. Heat c. Matter d. Entropy
2. The value of absolute zero is ----- C
a. -273 b. 273 c. 0 d. 37
3. Therm ----- = 2.52×10^7 calories.
a. 4 b. 3 c. 2 d. 1
4. In Joule- Kelvin effect, the total heat function $H = U + PV$ remains -----.
a. zero b. constant c. unity d. variable
5. The well-known laws of ----- mechanics are applicable to the motion of gas molecules.
a. classical b. quantum c. linear d. non-linear
6. The average kinetic energy associated with each degree of freedom is = -----.
a. kT b. $2kT$ c. $\frac{1}{2} kT$ d. $\frac{3}{2} kT$
7. In an adiabatic process, the amount of heat(Q) leaves or enters the system is equal to -----.
a. one b. zero c. infinity d. maximum
8. The second law of thermodynamics gives the direction of heat -----.
a. flow b. energy transfer
c. amount changes d. state changes
9. The value of entropy is ----- at absolute zero of temperature.
a. zero b. equal c. constant d. unity
10. The expression for Enthalpy is $H =$ -----.
a. $U + P/V$ b. $U - PV$ c. $U + PV$ d. $U - P/V$

Part B

5 X 6=30

Answer the following

Answer should not exceed 400 words or two pages

11. a. State and explain Dulong and Petit's law.
(or)
11. b. Define: (i) Specific heat (ii) C_v (iii) C_p
12. a. Explain the construction and working of Nernst Vacuum Calorimeter.
(or)
12. b. Write a note on Liquefaction of air.
13. a. State the postulates of Kinetic theory of gases.
(or)
13. b. State and explain the theorem of equipartition of energy.

