NET, IAS, State-SET (KSET, WBSET, MPSET, etc.), GATE, CUET, Olympiads etc.: Physics MCQs (Practice_Test 1 of 35)

1. The Farenheit and the Centrigrade scales have the same numerical value at a temperature of
   a. -30 degrees
   b. -40 degrees
   c. -100degrees
   d. -273degrees
2. van der Waals ′ equation of state of a gas takes into account
   a. the intermolecular forces only
   b. the size of the molecule only
   c. both the intermolecular forces and the size of the molecule
   d. the velocity of the molecules only
3. The First Law of Thermodynamics, U = ? Q-? W indicates that when a system goes from its initial state to a final state
   a. ? U is the same for the every path
   b. ? Q is the same for every path
   c. ? W is the same for every path
   d. ? U and? Q are the same for every path
4. Which one of the following properties of a body remains constant during a reversible adiabatic process?
   a. Enthalpy
   b. Temperature
   c. Specific heat
   d. Entropy
5. A heat engine work on a Carnot cycle with the heat sink at a temperature of 27 degrees C. If the efficiency is 20% , then the temperature (in Kelvin) of the heat source will be
   a. 375 degrees
   b. 300 degrees

c. 270 degrees

d. 150 degrees

6. Which one of the following figures correctly represents the temperature (T) -entropy (S) diagram (T in absolute scale) of a Carnot cycle?

a. A

b. B

c. C

d. D

7. Given that H = the enthalpy of a system T = absolute temperature and S = entropy G = H-TS is the Gibbs function for the system.In the case of a reversible, isothermal, isobaric process

a. G = constant

b. G > 0 and changes with T

c. G < 0 and changes with S

d. G changes with both T and S

8. Maxwell's law of distribution of velocities shows that

a. all particles have the same velocity

b. all velocities are equally probable

c. the particles have varying energies depending on their speeds

d. all particles have the same energy but different velocities

9. A molecular is at temperature T (in Kelvin) . According to the theorem of equi-partition of energy, the energy associated with each degree of freedom is

a. $\frac{1}{3}$ KBT

b. $\frac{1}{2}$ KBT

c. KBT

d. $\frac{3}{2}$ KBT

10. If the temperature of a black body is increased, then the maximum of the spectrum will

a. shift towards shorter wavelength

b. shift towards shorter frequency

c. shift towards the shorter or longer wavelength depending on the nature of the black body

d. not shift

11. If two particles of same mass having charges + q and + 9q, are allowed to fall from rest through the same electric potential difference, then their speeds will be in the ratio of

a. 3: 1

b. 1: 3

c. 1: 9

d. 9: 1

12. In the circuit shown in the above figure, the charge on capacitor C3 will be
    a. 1.7 m coulomb
    b. 1.5 m coulomb
    c. 2.5 m coulomb
    d. 5 m coulomb
13. Liquid dielectrics having polar molecules, such as water, always have dielectric constants that
    a. increase with decreasing temperature
    b. increase with increasing temperature
    c. decrease with decreasing temperature
    d. are independent of temperature
14. A parallel plate capacitor is connected to a battery. Consider the following statements in this regard: If a metal sheet of negligible thickness is placed parallel to the plates of the capacitor
    a. the battery will supply more charge
    b. the capacitance will increase
    c. the potential difference between the plates will increase
    d. equal and opposite charges will appear on the two faces of the metal plate

- Which of the above statement (s) is/are correct?
    a. 1 alone
    b. 4 alone
    c. 1 and 2
    d. 2 and 3

Frequently Asked Questions (FAQs)

- **Solved questions and answers**

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1 Answer

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