

Assignments for Week-2

Assignment 1

The internal energy of a gaseous system can be changed by

- (A) heating the system at constant pressure
- (B) heating the system at constant volume
- (C) cooling the system under adiabatic conditions
- (D) free expansion of the gas under adiabatic conditions

Assignment 2

Work done under adiabatic conditions is

- (A) state property
- (B) path property
- (C) state property if the temperature falls
- (D) path property if the pressure remains same

Assignment 3

At constant volume, heat required to change the temperature of 2 mol of a monatomic gas by 10 K is (R is gas constant)

- (A) 20 R
- (B) 30 R
- (C) 40 R
- (D) 10 R

Assignment 4

Maximum work is done on the gas under

- (A) isothermal reversible compression
- (B) isothermal irreversible compression
- (C) adiabatic reversible compression

(D) isothermal reversible compression

Assignment 5

Heat capacity at constant pressure gives information about

- (A) structural rigidity of a system
- (B) intermolecular interactions in a mixture
- (C) phase transitions
- (D) heat needed to raise the temperature of a system

Assignment 6

In an adiabatic expansion of a monatomic perfect gas which reduces its temperature by 20 K, the internal energy per mol of the system decreases by [R is gas constant]

- (A) 10 R
- (B) 20 R
- (C) 30 R
- (D) 15 R

Assignment 7

If you want to construct a calorimetric cell which should be an excellent conductor of heat, then the material of the cell should have

- (A) very low heat capacity
- (B) very high heat capacity
- (C) very high electrical conductivity
- (D) very low molecular weight

Assignment 8

To determine the change in internal energy of a system undergoing a process, the type of calorimeter required is

- (A) constant volume calorimeter
- (B) constant pressure calorimeter

- (C) constant temperature calorimeter
- (D) constant pressure and temperature calorimeter

Assignment 9

For an isothermal expansion of a perfect gas, the change in its internal energy is

- (A) positive
- (B) negative
- (C) zero
- (D) infinite

Assignment 10

For an adiabatic expansion of a perfect gas, the change in its internal energy is

- (A) positive
- (B) negative
- (C) zero
- (D) infinite