CHEMISTRY-11

Chapter#07-First Half (7.0.0 - 7.4.0) Test-3

Name: | Class: | ID:

Date: / /
Time Allowed: 50 Min.

Marks Total: **30** | **Marks Obtained:**

Maximum Marks: 10   **(OBJECTIVE TYPE)**   Time Allowed: 10 Min.

NOTE: Tick The Correct Option:

1) The change in heat energy of a chemical reaction at constant temperature and pressure is called:

(a) Enthalpy change   (b) Heat of sublimation

(c) Bond energy   (d) Internal energy change

2) A state function which describes together the internal energy and the product of pressure and volume is called:

(a) Enthalpy   (b) Internal energy   (c) Work   (d) Free energy

3) If H_1 is the enthalpy of reactants and H_2 is the enthalpy of products, then for exothermic reactions:

(a) $H_1 > H_2$ (b) $H_1 < H_2$ (c) $H_1 = H_2$ (d) None

4) The enthalpy of formation of ammonia is:

(a) -393.7 kJmol^{-1} (b) -41.6 kJmol^{-1} (c) -285.58 kJmol^{-} (d) $+180.51$ kJmol^{-1}

5) A spontaneous process is:

(a) Unidirectional   (b) Real   (c) Irreversible   (d) All

6) The reaction of N_2 with O_2 to form NO is:

(a) A spontaneous process   (b) A non-spontaneous process

(c) An exothermic process   (d) Both 'b' & 'c'

7) To predict whether the reaction is endothermic or exothermic, it is necessary to study the _____ energy of the system.

(a) Internal   (b) Potential   (c) Kinetic   (d) Free

8) Potential energy accounts for the:

(a) Motion of the particles   (b) Collisions between the particles

(c) Attraction between the particles   (d) Reaction between the particles

9) Pressure-volume work is:

(a) PV   (b) $P\Delta V$ (c) $-P\Delta V$ (d) $\Delta P\Delta V$

10) What is the basic equation of the first law of thermodynamics?

(a) $E = q + w$ (b) $\Delta E = q + w$ (c) $\Delta E = q - w$ (d) $\Delta E = q_v$

SECTION-I

Q.2: Give brief answers to the following questions: **(16)**

  i. What is a spontaneous reaction? Give examples.

  ii. A non-spontaneous process never happens in the universe. Justify.

 iii. The total energy of a system is the sum of translational, rotational and vibrational motions. Justify.

  iv. What are the ways of transferring energy between the system and the surroundings?

  v. What is the mathematical relationship between heat and temperature?

  vi. Define enthalpy.

SECTION-II

NOTE: **Attempt All Questions:**   **(08)**

Q.3: Explain the term internal energy of a system and also mention how the change in internal energy of a system can occur?

Q.4: What is first law of thermodynamics? Prove that $\Delta E = q_v$.