

NAME:		ROLL NO:		TIME:	50: MIN
SUB:	Chemistry	Date:		CLASS:	1 st Year
SYLLABUS	Chp. 6 (Chemical Energetics)	T. MARKS	30	OBT. M	

Q. 1 Choose the Correct Answer. Cutting, Erasing, Double Selection is Strictly Prohibited. (1x6=6)

1. Which of the following reactions is exothermic?

- (A) Photosynthesis (B) Electrolysis of water
(C) Combustion of methane (D) Melting of ice

2. The enthalpy change for a reaction depends on:

- (A) Pathway taken from reactants to products (B) Presence of a catalyst
(C) Initial and final states of the reactants and products (D) Rate of the reaction

3. Which statement about bond energy is true?

- (A) All bond energies are exact (B) Bond energy is always negative
(C) Some bond energies are average values (D) Bond energy equals entropy change

4. Which of the following processes would typically result in an increase in entropy of the system?

- (A) Freezing of water (B) Condensation of steam
(C) Dissolving a solid in a liquid (D) Formation of a crystal from a saturated solution

5. For a reaction to occur spontaneously,

- (A) $(\Delta H - T\Delta S)$ must be negative (B) $(\Delta H + T\Delta S)$ must be negative
(C) ΔH must be negative (D) ΔS must be negative

6. The term "standard conditions" means:

- (A) 273 K and 2 atm (B) 100°C and 1 mol
(C) 298 K and 1 atm (D) 298 K and 760 mmHg

PART-I

Q. 2 Write Short Answers of the Following Questions (2x8=16)

- Define standard enthalpy of atomization.
- Explain why energy is released when new bonds are formed.
- How does ionic radius affect the enthalpy change of hydration?
- Write down the formula for calculating heat using mass, specific heat capacity, and temperature change.
- Differentiate clearly between entropy (S) and Gibbs free energy (G).
- What factors influence the magnitude of the lattice enthalpy?
- The enthalpy of solution can be either positive or negative. Explain what a positive ΔH_{sol} and a negative ΔH_{sol} indicate about the energy changes during the dissolution process.
- How the calorie value of food is related to enthalpy change?

PART-II

Write Answers of the Following Questions in Detail.

- Q. 3 (a) State and explain Hess's law. Give its two applications. 4**
 (b) When 0.400 g NaOH is dissolved in 100.0 g of water, the temperature rises from 25.00 to 26.03°C.
 Calculate: (i) q_{water} , (ii) ΔH for the solution process. 4



Muftstudy.com

1ST YEAR REVISION & TEST SESSION



NAME:				ROLL NO:		TIME:	50: MIN
SUB:	Chemistry	Date:			CLASS:	1 st Year	
SYLLABUS	Chp. 6 (Chemical Energetics)			T. MARKS	30	OBT. M	

Answer Key

1	C	2	C	3	C	4	C
5	A	6	C				