

# Step Academy official

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STUDENT NAME	
PAPER CODE	106436
TIME ALLOWED	40
Paper Date	20-02-2026



CLASS	New 1st Year (FSC/ICS)
SUBJECT	Chemistry
TOTAL MARKS	25
Paper Type	

## Q1. Choose the correct answer.

5X1=5

1. The enthalpies of all elements in their standard states are:

(A) Unity (B) Zero (C) Always positive (D) Always negative

2. The standard heat changes occur at:

(A) 25°C and 2 atm (B) 298 K and 1 atm (C) 25 °C and 1 mmHg (D) 273 K and 1 atm

3. In a bomb calorimeter, which quantity is held constant during the measurement of enthalpy change?

(A) Pressure (B) Temperature (C) Volume (D) Heat

4. Hess' law of heat summation includes:

(A) Initial reactants only (B) Joule's principle (C) Hess's law (D) Law of conservation of energy

5. Born Haber cycle is used to determine the:

(A) Lattice energy (B) Enthalpy of sublimation (C) Enthalpy of vaporization (D) Enthalpy of neutralization

## Q2. Write short answers of the following questions.

10X2=20

1 . Can an energy profile diagram definitively prove the exact molecular mechanism of a reaction? Explain briefly.

2 . How does the body utilize the energy released from the metabolism of food, and why is not all of it converted into useful work?

3 . Why is the calorie content of food usually expressed per serving size rather than per mole or per gram of the pure substance?

4 . State Hess's law of constant heat summation.

5 . State Hess's Law of Heat Summation in your own words and explain its significance in thermochemistry.

6 . Heat of solution of a substance is measured at infinite dilution. Why?

7 . Why it is necessary to mention the physical state of the reactants and products?

8 . Write down applications of Hess's law

9 . Define lattice energy and its S.I unit.

10 . How do we determine the  $\Delta H$  in the laboratory for food, fuel etc?