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JEE MAIN THERMODYNAMICS — THERMOCHEMICAL EQUATIONS AND CALORIMETRY (MEASUREMENT OF ΔU AND ΔH) — PYQS

Max. Marks: 8 **Questions:** 2

Section B (Numerical) — 2 questions

Q.1 If 3.365 g of ethanol (l) is burnt completely in a bomb calorimeter at 298.15 K, the heat produced is 99.472 kJ. The $|\Delta H_f°|$ of ethanol at 298.15 K is _____ $\times 10^2$ kJ mol^{-1}. (Nearest integer)

Given: Standard enthalpy for combustion of graphite = −393.5 kJ mol^{-1}

Standard enthalpy of formation of water (l) = −285.8 kJ mol^{-1}

Molar mass in g mol^{-1} of C, H, O are 12, 1 and 16 respectively

[JEE Main 2026 (Online) 4th April Evening Shift]

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Q.2 A sample of n-octane (1.14 g) was completely burnt in excess of oxygen in a bomb calorimeter, whose heat capacity is 5 kJ K^{-1}. As a result of combustion reaction, the temperature of the calorimeter is increased by 5 K. The magnitude of the heat of combustion of octane at constant volume is _____ kJ mol^{-1} (nearest integer).

[JEE Main 2025 (Online) 3rd April Evening Shift]

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ANSWER KEY

Ques.	1	2					
Ans.	**3**	**2500**					