

Multiple Choice

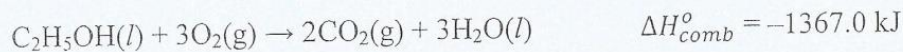
- 1) 890 kJ is released when 1 mole of $\text{CH}_4(\text{g})$ is combusted. Calculate ΔH in (kJ) when 5.75 g of $\text{CH}_4(\text{g})$ is combusted?

A) -319.8 B) -890.0 C) -2455.2 D) -516.2

- 2) What is the amount of heat required to raise The temperature of 7.40g of H_2O from 29.0°C to 46.0°C ?

A) 1424.0 B) 526.3 C) 897.9 D) 29.2

- 3) Given the following thermal equation for the complete combustion of acetone " $\text{C}_2\text{H}_5\text{OH}$ ":



And knowing that:

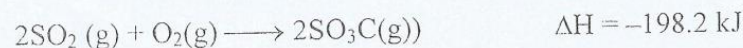
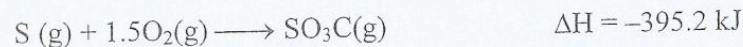
$$\Delta H_f^\circ[(\text{C}_2\text{H}_5\text{OH}(\text{l}))] = -277.7 \text{ kJ/mol}$$

$$\text{and } \Delta H_f^\circ[(\text{H}_2\text{O}(\text{l}))] = -285.8 \text{ kJ/mol}$$

The heat of formation (in kJ/mol) of $\text{CO}_2(\text{g})$, $\Delta H_f^\circ[(\text{CO}_2(\text{g}))]$ is:

A) -787.3 B) -393.7 C) -1358.9 D) -679.5

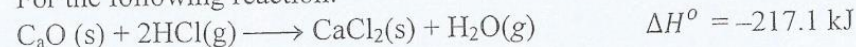
- 4) From the enthalpies of the following reactions:



The heat of formation (in kJ/mol) of $\text{SO}_2(\text{g})$, $\Delta H_f^\circ[(\text{SO}_2(\text{g}))]$ is:

A) -593.4 B) -197.0 C) -296.1 D) -395.2

- 5) For the following reaction:



Calculate ΔE° in (kJ) ?

A) -219.6 B) -222.1 C) -212.1 D) -214.6

- 6) Knowing that liquid chloroform boils at 76.8°C and its molal boiling-point-elevation constant (K_b) is $5.02^\circ\text{C m}^{-1}$, the boiling point, in $^\circ\text{C}$, of a solution of 41.0 g of solid naphthalene (C_{10}H_8) in 500 g of liquid chloroform is:

A) 3.21 B) 80.00 C) 82.24 D) 76.8

- 7) At 30.0°C , the vapor pressure of pure benzene " C_6H_6 " is 120.0 torr and that of pure toluene " C_7H_8 " is 40.0 torr. What is the vapor pressure (in torr) of an ideal solution that is formed from 3.0 mol of benzene and 1.0 mol of toluene at 30.0°C ?

A) 80.0 B) 60.0 C) 90.0 D) 100.0

- 8) The osmotic pressure of an 0.01 M aqueous solution of CaCl_2 (an electrolyte nonvolatile solute) is found to be 0.602 atm at 25°C . What is the Van't Hoff factor "i" of this solution?

A) 2.46 B) 2.63 C) 2.75 D) 2.86

9) 58.5 g of NaCl and 180 g of glucose (C₆H₁₂O₆) were separately dissolved in 1000 ml of water. Identify the correct statement regarding the depression of freezing point (f.p.) of the resulting solutions.

- A) NaCl solution will show lower f.p.
 B) Glucose solution will show lower f.p.
 C) Both the solutions will show equal depression of f.p.
 D) The f.p. will be 0°C for both of the solutions.

10) 15 g of a nonvolatile, nonelectrolyte solute are dissolved in 100 grams of water. The freezing point of the solution is -4.65°C and the mole fraction of solute is 0.0430. K_f of water is 1.86°C/molal. Calculate the molecular weight of the solute in the above solution.

- A) 18.6 B) 6.0 C) 60.0 D) 2.5

11) For the following reaction: 2NO(g) + H₂(g) → N₂O(g) + H₂O(l)

Exp.	[NO] _o	[H ₂] _o	Initial rate
1	0.021	0.065	1.46
2	0.021	0.260	1.46
3	0.042	0.065	5.84

- A) Rate = k [NO]² [H₂]
 C) Rate = k [NO]²
 B) Rate = k [NO]¹ [H₂]²
 D) Rate = k [H₂]

12) At 770 K, the rate constant for the isomerization reaction of cyclopropane to propane which follows a first order kinetics is 2.4 × 10⁻² min⁻¹. The time (in min) required for this isomerization reaction to be 80% complete at 770 K is:

- A) 67 B) 74 C) 82 D) 88

13) A certain first-order reaction is 45% complete in 64.7 s. what is the value of the half-life period (in s) for this reaction?

- A) 81 B) 78 C) 75 D) 72

14) A certain exothermic reaction has ΔH^o = -95 kJ/mol and its activation energy is 25 kJ/mol. The activation energy (in kJ/mol) for its reverse reaction is:

- A) 25 B) 70 C) 95 D) 120

15) The activation energy for a certain first-order reaction is 114.0 kJ/mol. By what factor (how many times) will the rate constant increases when the temperature is raised from 37°C to 52°C?

- A) 7.7 B) 7.5 C) 7.3 D) 7.1

الإسم :	Q1:	Q5:	Q9:	Q13:
الرقم الجامعي :	Q2:	Q6:	Q10:	Q14:
رقم الشعبة :	Q3:	Q7:	Q11:	Q15:
التنمذج : A	Q4:	Q8:	Q12:	