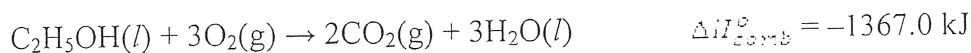


Multiple Choice

- 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) 897.9 C) 526.3 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:

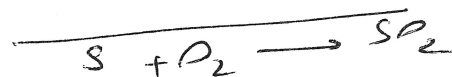
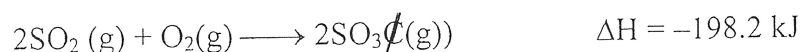
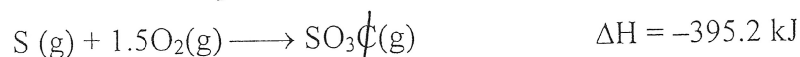
$$\Delta H_f^\circ[(\text{C}_2\text{H}_5\text{OH}(\text{l}))] = -277.7 \text{ kJ/mol}$$

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

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) -679.5 C) -1358.9 D) -393.7

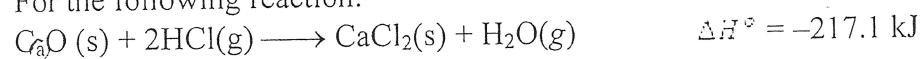
- 4) From the enthalpies of the following reactions:



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

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

- 5) For the following reaction:



Calculate ΔE° in (kJ) ?

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

- 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) 82.24 C) 80.00 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) 100.0 B) 60.0 C) 90.0 D) 80.0

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

- 9) 58.5 g of NaCl and 180 g of glucose ($C_6H_{12}O_6$) 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) Glucose solution will show lower f.p.
 B) NaCl 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) 60.0 B) 6.0 C) 18.6 D) 2.5

- 11) For the following reaction: $2\text{NO}(\text{g}) + \text{H}_2(\text{g}) \rightarrow \text{N}_2\text{O}(\text{g}) + \text{H}_2\text{O}(\text{l})$

Exp.	$[\text{NO}]_0$	$[\text{H}_2]_0$	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 = $k [\text{NO}]^2 [\text{H}_2]$ B) Rate = $k [\text{NO}]^1 [\text{H}_2]^2$
 C) Rate = $k [\text{H}_2]$ D) Rate = $k [\text{NO}]^2$

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

A) 82 B) 74 C) 67 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) 72 D) 75

- 14) A certain exothermic reaction has $\Delta H^\circ = -95 \text{ kJ/mol}$ and its activation energy is 25 kJ/mol. The activation energy (in kJ/mol) for its reverse reaction is:

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

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

الاسم :	Q1:	Q5:	Q9:	Q13:
الرقم الجامعي :	Q2:	Q6:	Q10:	Q14:
رقم الشعبة :	Q3:	Q7:	Q11:	Q15:
النموذج : B	Q4:	Q8:	Q12:	