



Arjuna NEET (2024)

Thermodynamics

DPP-09

1. Which of the following statement is true?
(1) ΔH is positive for exothermic reactions
(2) ΔH is negative for endothermic reactions
(3) The enthalpy of fusion is negative
(4) The heat of neutralization of strong acid with strong base is always the same
2. Given
 $\text{H}_2(\text{g}) + \frac{1}{2}\text{O}_2(\text{g}) \rightarrow \text{H}_2\text{O}(\text{g}) + q_1$
 $\text{H}_2(\text{g}) + \frac{1}{2}\text{O}_2(\text{g}) \rightarrow \text{H}_2\text{O}(\text{l}) + q_2$
The enthalpy of vaporisation of water is equal to
(1) $q_1 + q_2$ (2) $q_1 - q_2$
(3) $q_2 - q_1$ (4) $q_1 q_2$
3. On combustion, carbon forms two oxides CO and CO_2 . Heat of formation of CO_2 is -393.5 kJ and that of CO is -110.5 kJ. Heat of combustion of CO is:
(1) -393.5 kJ (2) -504.0 kJ
(3) -283.0 kJ (4) 2830.0 kJ
4. The equilibrium constant for a reaction is 100 what will be the value of ΔG° ?
 $R = 8.314 \text{ JK}^{-1} \text{ mol}^{-1}$, $T = 300 \text{ K}$:
(1) -11488 kJ (2) -11.488 kJ
(3) -12 kJ (4) -12000 kJ
5. For the reaction : $\text{N}_2\text{O}_4(\text{g}) \rightleftharpoons 2\text{NO}_2(\text{g})$
 $\Delta U = 2.0$ kcal, $\Delta S = 50 \text{ cal K}^{-1}$ at 300 K calculate ΔG ?
(1) $+12.4$ kcal (2) -12.4 kcal
(3) -6.4 kcal (4) $+6.4$ kcal
6. Which relation is incorrect:
(1) $\Delta G = -T \Delta S_T$
(2) $\Delta G^\circ = -2.303 RT \log K$
(3) $\Delta H = \Delta U + \Delta n_g RT$
(4) $w_{\text{useful}} = \Delta H$
7. Which is always correct at equilibrium:
(1) $\Delta G^\circ = 0$ (2) $\Delta G = 0$
(3) $\Delta S_{\text{system}} = 0$ (3) $\Delta E = 0$
8. For the water gas reaction
 $\text{C}(\text{s}) + \text{H}_2\text{O}(\text{g}) \rightleftharpoons \text{CO}(\text{g}) + \text{H}_2(\text{g})$
The standard Gibb's energy of reaction (at 1000 K) is -8.1 kJ mol^{-1} . Value of equilibrium constant is—
(1) 2.6 (2) 6.2
(3) 8.2 (4) 10
9. Identify the correct statement regarding entropy.
(1) At 0°C , the entropy of a perfectly crystalline substance is taken to be zero.
(2) At absolute zero temp. the entropy of a perfectly crystalline solid is positive.
(3) At absolute zero temp. the entropy of all crystalline substance is taken be zero
(4) At absolute zero temp. the entropy of a perfectly crystalline solid is taken to be zero.
10. The heat of neutralization of HCl by NaOH is -55.9 KJ/mol. If the heat of neutralization of HCN by NaOH is -12.1 KJ/mol. The energy of dissociation of HCN is
(1) -43.8 KJ (2) 43.8 KJ
(3) 68 KJ (4) -68 KJ



Note: Kindly find the Video Solution of DPPs Questions in the DPPs Section.

Answer Key

1. (4)
2. (3)
3. (3)
4. (2)
5. (2)

6. (4)
7. (2)
8. (1)
9. (4)
10. (2)



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