DPP
DAILY PRACTICE PROBLEMS

CLASS : XIth
DATE :

SUBJECT : CHEMISTRY
DPP No. : 7

Topic :- THERMODYNAMICS

1. For the precipitation of AgCl by Ag^+ ions and HCl:
   a) $\Delta H = 0$ b) $\Delta G = 0$ c) $\Delta G = -$ ve   d) $\Delta H = \Delta G$

2. When a certain amount of ethylene was burnt 6226 kJ heat was evolved. If heat of combustion of ethylene is 1411 kJ, the volume of O_2 (at NTP) that entered into the reaction is:
   a) 296.5 mL   b) 296.5 litre   c) 6226×22.4 litre   d) 22.4 litre

3. The heat change for the reaction, $C(s) + 2S(s) \rightarrow CS_2(l)$ is called:
   a) Heat of solution of CS_2
   b) Heat of fusion of CS_2
   c) Heat of formation of CS_2
   d) Heat of combustion of carbon

4. Given enthalpy of formation of $CO_2(g)$ and $CaO(s)$ are -94.0 kJ and -152 kJ respectively and the enthalpy of the reaction, $CaCO_3(s) \rightarrow CaO(s) + CO_2(g)$ is 42 kJ. The enthalpy of formation of $CaCO_3(s)$ is :
   a) -42 kJ   b) -202 kJ   c) $+202$ kJ   d) -288 kJ

5. The ratio of slopes of $\log P$ $vs \log V$ for reversible adiabatic process and reversible isothermal process of an ideal gas is equal to:
   a) γ b) $1 - \gamma$ c) $\gamma - 1$ d) $\frac{1}{\gamma}$

6. In which of the following processes of neutralization magnitude of $\Delta H_{neutralisation}$ is less than that of $\Delta H_{ionisation}$ of water?
   a) HCl + NaOH   b) H_2SO_4 +NaOH   c) CH_3COOH + NaOH   d) $HClO_4$ +KOH

7. A boiled egg show a/an ...in entropy.
   a) Increase   b) Decrease   c) No change   d)None of these

8. Which unit represents largest amount of energy?
   a) Calorie   b) Joule   c) Erg   d)Electron volt

9. The heat of combustion of carbon to CO_2 is -393 kJ/mol. The heat released upon formation of 35.2 g of CO_2 from carbon and oxygen gas is
   a) $+325$ kJ   b) -31.5 kJ   c) -315 kJ   d) $+31.5$ kJ

10. A thermally isolated gaseous system can exchange energy with the surroundings. The mode of transference of energy can be:
    a) Heat   b) Work   c) Heat and radiation   d) None of these

11. Warming ammonium chloride with sodium hydroxide in a test tube is an example of:

    a) Closed system   b) Isolated system   c) Open system   d) None of these

12. Identify the correct statements regarding entropy

    a) At 0°C, the entropy of a perfectly crystalline substance is taken to be zero   b) At absolute zero of temperature, the entropy of all perfectly crystalline substance is positive

    c) At absolute zero of temperature, the entropy of all crystalline substance is taken to be negative   d) At absolute zero of temperature, the entropy of a perfectly crystalline substance is taken to be zero

13. The matter has highest entropy in:

    a) Solid state   b) Liquid state   c) Gaseous state   d) Equal in all

14. $H_2(g) + \frac{1}{2}O_2(g) = H_2O(l); \Delta H_{298K} = -68.32$ kcal. Heat of vaporization of water at 1 atm and 25°C is 10.52 kcal. The standard heat of formation (in kcal) of 1 mole of water vapour at 25°C is :

    a) -78.84 b) 78.84   c) $+57.80$ d) -57.80

15. For vaporization of water at 1 atmospheric pressure, the values of ΔH and ΔS are 40.63 kJ mol^{-1} and 108.8 JK^{-1}mol^{-1}, respectively. The temperature when Gibbs energy change (ΔG) for this transformation will be zero, is:

    a) 273.4 K   b) 393.4 K   c) 373.4 K   d) 293.4 K

16. For an adiabatic process:

    a) $Q = +W$ b) $Q = 0$ c) $\Delta U = q$ d) $P\Delta V = 0$

17. The $\Delta H^{\circ}_{\text{ionisation}}$ for HCN and CH_3COOH are 45.2 and 2.1 kJ mol^{-1}.Which of the following correct?

    a) $pKa_{\text{HCN}} < pKa_{CH_3COOH}$

    b) $pKa_{\text{HCN}} > pKa_{CH_3COOH}$

    c) $pKa_{\text{HCN}} = pKa_{CH_3COOH}$

    d) None of the above

18. Which of the following taking place in the blast furnace is endothermic?

    a) $CaCO_3 \rightarrow CaO + CO_2$ b) $2C + O_2 \rightarrow 2CO$

    c) $C + O_2 \rightarrow CO_2$ d) $Fe_2O_3 + 3CO \rightarrow 2Fe + 3CO_2$

19. Hess's law is used to calculate

    a) Enthalpy of reaction   b) Entropy of reaction

    c) Work done in reaction   d) All of these

20. For spontaneity of a cell, which is correct?

    a) $\Delta G = 0, \Delta E = 0$ b) $\Delta G = -$ve, $\Delta E = 0$ c) $\Delta G = +$ve, $\Delta E = +$ve   d) $\Delta G = -$ve , $\Delta E = +$ve