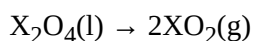


1. The entropy change in the fusion of one mole of a solid melting at  $27^{\circ}\text{C}$  (the latent heat of fusion is  $2930\text{ J mol}^{-1}$ ) is
  1.  $9.77\text{ JK}^{-1}\text{mol}^{-1}$
  2.  $10.73\text{ JK}^{-1}\text{mol}^{-1}$
  3.  $2930\text{ JK}^{-1}\text{mol}^{-1}$
  4.  $108.5\text{ JK}^{-1}\text{mol}^{-1}$
2. For exothermic reaction to be spontaneous ( $\Delta S = \text{negative}$ )
  1. Temperature must be high
  2. Temperature must be zero
  3. Temperature may have any magnitude
  4. Temperature must be low
3. Which of the following is not a state function
  1.  $\Delta S$
  2.  $\Delta G$
  3.  $\Delta H$
  4.  $\Delta Q$
4. The unit of entropy is ,
  1.  $\text{J mol}^{-1}$
  2.  $\text{JK mol}^{-1}$
  3.  $\text{J mol}^{-1}\text{K}^{-1}$
  4.  $\text{J}^{-1}\text{K}^{-1}\text{mol}^{-1}$
5. The lattice energy of NaCl is  $-780\text{ kJ mol}^{-1}$ . The enthalpies of hydration of  $\text{Na}^+(\text{g})$  and  $\text{Cl}^-(\text{g})$  ions are  $-406\text{ kJ mol}^{-1}$  and  $-364\text{ kJ mol}^{-1}$ . The enthalpy of solution of NaCl(s) is
  1.  $738\text{ kJ mol}^{-1}$
  2.  $10\text{ kJ mol}^{-1}$
  3.  $-10\text{ kJ mol}^{-1}$
  4.  $-822\text{ kJ mol}^{-1}$
6. Which of the following thermodynamic quantities is an outcome of the second law of thermodynamics?
  1. Work
  2. Enthalpy
  3. Internal energy
  4. Entropy
7. Which of the following statements is correct for a reversible process in a state of equilibrium?
  1.  $\Delta G = -2.30RT \log K$
  2.  $\Delta G = 2.30RT \log K$
  3.  $\Delta G^0 = -2.30RT \log K$
  4.  $\Delta G^0 = 2.30RT \log K$

8.

For the reaction :



$$\Delta U = 2.1 \text{ kcal}, \Delta S = 20 \text{ cal K}^{-1} \text{ at } 300 \text{ K}$$

The value of  $\Delta G$  is

1. 2.7 kcal
2. -2.7 kcal
3. 9.3 kcal
4. -9.3 kcal

9.

From the following bond energies :

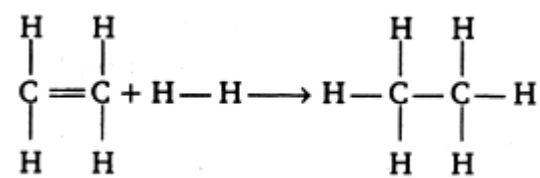
$$\text{H—H bond energy: } 431.37 \text{ kJ mol}^{-1}$$

$$\text{C=C bond energy: } 606.10 \text{ kJ mol}^{-1}$$

$$\text{C—C bond energy: } 336.49 \text{ kJ mol}^{-1}$$

$$\text{C—H bond energy: } 410.50 \text{ kJ mol}^{-1}$$

Enthalpy for the reaction,



will be

1. 1523.6 kJ mol<sup>-1</sup>
2. -243.6 kJ mol<sup>-1</sup>
3. -120.0 kJ mol<sup>-1</sup>
4. 553.0 kJ mol<sup>-1</sup>

10.

The values of  $\Delta H$  and  $\Delta S$  for the reaction,  $\text{C}_{(\text{graphite})} + \text{CO}_2(\text{g}) \rightarrow 2\text{CO}(\text{g})$  are 170 kJ and 170 JK<sup>-1</sup>, respectively. This reaction will be spontaneous at

1. 710 K
2. 910 K
3. 1110 K
4. 510 K

11.

The enthalpy of combustion of H<sub>2</sub>, cyclohexene (C<sub>6</sub>H<sub>10</sub>) and cyclohexane (C<sub>6</sub>H<sub>12</sub>) are -241, -3800 and -3920 kJ per mol respectively. Heat of hydrogenation of cyclohexene is :

1. -121 kJ per mol
2. +121 kJ per mol
3. +242 kJ per mol
4. -242 kJ per mol

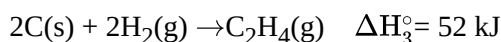
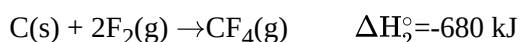
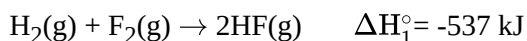
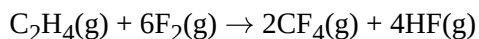
12.

Entropy decreases during:

1. Crystallization of sucrose from solution
2. Rusting of iron
3. Melting of ice
4. Vaporization of camphor

13.

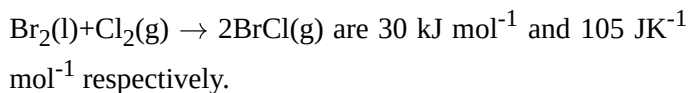
For given following equations and  $\Delta H^\circ$  values determine the enthalpy of reaction at 298 K for the reaction



1. -1165
2. -2486
3. +1165
4. +2486

14.

The enthalpy and entropy change for the reaction :



The temperature at which the reaction will be in equilibrium is :

1. 285.7 K
2. 273 K
3. 450 K
4. 300 K

15.

For the reaction,  $2\text{Cl}(\text{g}) \rightarrow \text{Cl}_2(\text{g})$ , the correct option is:

1.  $\Delta_r H > 0$  and  $\Delta_r S < 0$
2.  $\Delta_r H < 0$  and  $\Delta_r S > 0$
3.  $\Delta_r H < 0$  and  $\Delta_r S < 0$
4.  $\Delta_r H > 0$  and  $\Delta_r S > 0$

16.

The free energy change ( $\Delta G^\circ$ ) is negative when

1. The surroundings do no electrical work on the system
2. The surroundings do electrical work on the system
3. The system does electrical work on the surroundings
4. The system does no electrical work on the surroundings

17.

The volume of gas is reduced to half from its original volume. The specific heat will be

1. Reduced to half
2. Be doubled
3. Remain constant
4. Increase four times

18.

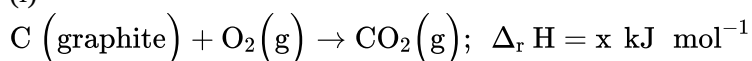
The entropy change can be calculated by using the expression  $\Delta S = \frac{q_{\text{rev}}}{T}$ . When water freezes in a glass beaker, choose the correct statement among the following.

1.  $\Delta S$  (system) decreases but  $\Delta S$  (surroundings) remains the same
2.  $\Delta S$  (system) increases but  $\Delta S$  (surroundings) decreases
3.  $\Delta S$  (system) decreases but  $\Delta S$  (surroundings) increases
4.  $\Delta S$  (system) decreases but  $\Delta S$  (surroundings) also decreases

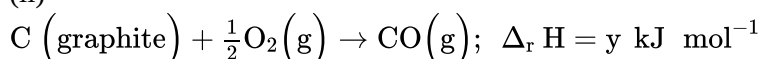
19.

On the basis of thermochemical equations (1), (2) and (3), find out which of the algebraic relationships given in options (a) to (d) is correct

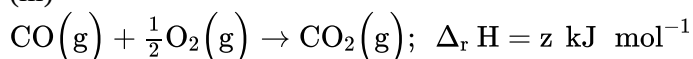
(i)



(ii)



(iii)



1.  $z=x+y$

2.  $x=y-z$

3.  $x=y+z$

4.  $y=2z-x$

20.

Which of the following is not correct?

1.  $\Delta G$  is zero for a reversible reaction.

2.  $\Delta G$  is positive for a spontaneous reaction.

3.  $\Delta G$  is negative for a spontaneous reaction.

4.  $\Delta G$  is positive for a non-spontaneous reaction.

### [Fill OMR Sheet\\*](#)

\*If above link doesn't work, please go to test link from where you got the pdf and fill OMR from there

[CLICK HERE](#) to get  
**FREE ACCESS** for 3  
days of ANY NEETprep  
course