CHEMISTRY

AAKASH INSTITUTE ENGLISH

MOCK TEST 11

Example

1. which of the following case entropy increases

A. boiling of an egg

B. crystallization of sugar from solution

C. freezing of water

D. stretching of rubber

Answer: A

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2. if the reaction is reversible all is at equilibrium $(\Delta S_universe = 0)$, then the entropy of the system

A. will change abruptly

B. is greater than 1

C. will remain constant

D. is equal to 0

Answer: C

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3. State and explain the second law of thermodynamics. Mention the essential

conditions for the spontaneity of a chemical reaction.

A. in any spontaneous process entropy of the universe always increases

B. energy can neither be created nor be destroyed

C. energy of the universe remains constant

D. DeltaS_universelt0 for a spontaneous reaction

Answer: A

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4. ΔH and ΔS are positive for a chemical reaction. Under what conditions is the reaction expected to occur spontaneously?

A. DeltaHgtTDeltaS

B. TDeltaSgtDeltaH

C. $\Delta H = T\Delta S$

D. DeltaGgt0

Answer: B

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5. the incorrect expression among the following is

A. $K = e^{-\Delta \frac{G^{\circ}}{R} T}$

B. In $K = \dfrac{\Delta H^{\circ} - T\Delta S^{\circ}}{R} T$

C. $\Delta S_{\sum} = -\Delta H_s y \dfrac{s}{T}$

D. $\Delta S_s ys = q_r e \dfrac{v}{T}$

Answer: B

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6. ΔG° for the following reaction:

$I_2(s) + H_2S(g) \rightarrow 2HI(g) + S(s)$ at 298 K is,

Given that $\Delta_f G^{\circ} HI(g) = 1.8 kJ mol^{-1}$.

$\Delta_f G^{\circ} H_2S(g) = 33.8 kJ\ mol^{-1}$.

A. 30200 kJ

B. -30.2 kJ

C. -30200J

D. -302 J

Answer: C

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7. a process A rarr D is difficult to occur directly instead it takes place in three successive steps, DeltaS(ArarrB)=40 e.u., DeltaS(BrarrC)=30 e.u., DeltaS(DrarrC)=20 e.u. where e.u. is entropy unit then the entropy change DeltaS for the process (ArarrD) is

A. + 90 e.u.

B. + 50 e.u.

C. -90 e.u.

D. - 50 e.u.

Answer: B

8. the entropy possessed by certain substances at absolute zero is known as

A. Residual entropy

B. positive entropy

C. negative entropy

D. excess entropy

Answer: A

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9. The following equilibrium are given below,

$A_2 + 3B_2 \Leftrightarrow 2AB_3 \ldots . K_1$

$A_2 + C_2 \Leftrightarrow 2AC \ldots . K_2$

$B_2 + \frac{1}{2}C_2 \Leftrightarrow B_2C \ldots . K_3$

The equilibrium constant of the reaction $2AB_3 + \frac{5}{2}C_2 \Leftrightarrow 2AC + 3B_2C$, in terms of K_1, K_2, and K_3 is

A. $K_1 \frac{K_2}{K_3}$

B. $K_1 \frac{K_3^2}{K_2}$

C. $K_2 \frac{K_3^3}{K_1}$

D. $K_1 K_2 K_3$

Answer: C

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10. consider the given reaction, 3A(g) + B(g) hArr 2C(g) at a given temperature if a mixture of 2 mol each of A, B and C exist at equilibrium and $K_c = 9$ then volume of the flask will be

A. 3L

B. 6L

C. 9L

D. 36L

Answer: B

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11. In a chemical reaction, equilibrium is said to have been established when the

A. backward and forward reaction ceases

B. concentration of reactants and products are equal

C. rate of backward reaction is equal to the rate of forward reaction

D. reaction ceases to generate heat

Answer: C

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12. consider the reaction $2A_g + B_g \Leftrightarrow 2C_g$ for which $K_c = 350$. if 0.001` mole of each of the reactant and product are mix in a 2.0 L flux in the reaction quotient and spontaneous direction of the system will be

A. Q_c= 0.002, the equilibrium shifts to the left

B. Q_c = 2000, the equilibrium shifts to the left

C. Q_c =0.002, the equilibrium shifts to right

D. Q_c = 2000, the equilibrium shifts to right

Answer: B

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13. for the reaction $P + Q \Rightarrow R + 2S$, initially the concentration of P is equal to that of Q (1 molar) but at equilibrium the concentration of

R will be twice of that of P, then the equilibrium constant of the reaction is

A. $\frac{4}{3}$

B. $\frac{32}{3}$

C. $\frac{3}{10}$

D. $\frac{1}{10}$

Answer: B

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14. stage comes when no more sugar dissolves, instead it settles down at the bottom of the solution is now said to be

A. condensed

B. in a state of equilibrium

C. saturated

D. both (2) & (3)

Answer: D

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