



## DPP-2 [Entropy(Therotical)]

*“Boring lag raha? Samajh le – growth wahi hoti hai jahaan comfort nahi hota.” — Weird Chemist*

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**Q1. Entropy means –**

- (1) Disorderness
- (2) Randomness
- (3) Orderness
- (4) Both 1 & 2

**Q2. Which of the following state function is not zero at standard state –**

- (1) Enthalpy
- (2) Entropy
- (3) Free energy
- (4) Work

**Q3. In any natural process occurring in the universe –**

- (1) Entropy is conserved
- (2) Entropy increases
- (3) Entropy decreases
- (4) Entropy remains unchanged

**Q4. The most random state of H<sub>2</sub>O system is –**

- (1) Ice
- (2) H<sub>2</sub>O(l) at 80°C ; 1 atm
- (3) Steam
- (4) H<sub>2</sub>O(l) at 25°C ; 1 atm

**Q5. When you make ice cubes, the entropy of water –**

- (1) Does not change
- (2) Increases
- (3) Decreases
- (4) May either increase or decrease depending on the process used

**Q6. The least random state of H<sub>2</sub>O is –**

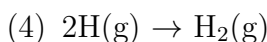
- (1) Ice
- (2) Liquid water
- (3) Steam
- (4) Randomness is same in all states

**Q7. In which case change in entropy is negative?**

- (1) Evaporation of water
- (2) Expansion of gas at constant temperature

*(NEET 2019)*

(3) Sublimation of solid to gas



**Q8. In which of the following case entropy decreases –**

(1) Solid changing to liquid

(2) Expansion of a gas

(3) Crystals dissolve

(4) Polymerisation

**Q9. Which has the least entropy –**

(1) Graphite

(2) Diamond

(3)  $\text{N}_2(\text{g})$

(4)  $\text{N}_2\text{O}(\text{g})$

**Q10. When two gases are mixed, the entropy –**

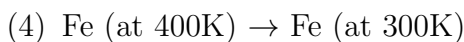
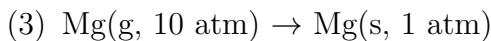
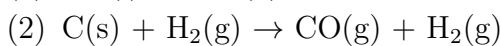
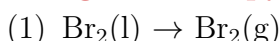
(1) Remains constant

(2) Decreases

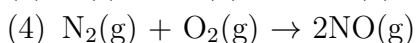
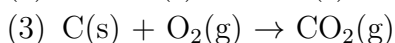
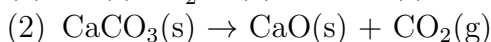
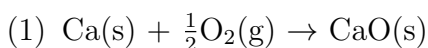
(3) Increases

(4) Becomes zero

**Q11. Change in entropy is negative for –**



**Q12. For which reaction from the following,  $\Delta S$  will be maximum?**



**Q13.  $\Delta S$  for the reaction  $\text{MgCO}_3(\text{s}) \rightarrow \text{MgO}(\text{s}) + \text{CO}_2(\text{g})$  will be –**

(1) 0

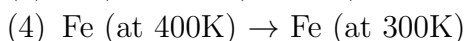
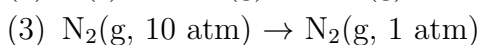
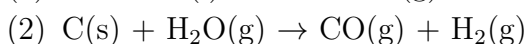
(2) -ve

(3) +ve

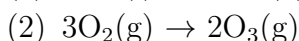
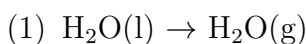
(4)  $\infty$

**Q14. Change in entropy is negative for –**

(1) Bromine (l)  $\rightarrow$  Bromine (g)



**Q15. In which reaction  $\Delta S$  is positive –**



- (3)  $2\text{H}_2\text{O}(l) \rightarrow 2\text{H}_2\text{O}(g)$   
(4)  $\text{N}_2(g) + 3\text{H}_2(g) \rightarrow 2\text{NH}_3(g)$

**Q16. Ammonium chloride when dissolved in water leads to cooling sensation. The dissolution of  $\text{NH}_4\text{Cl}$  at constant temperature is accompanied by –**

- (1) Increase in entropy  
(2) Decrease in entropy  
(3) No change in entropy  
(4) No change in enthalpy

**Q17. For the gas phase reaction,  
 $\text{PCl}_5(g) \rightleftharpoons \text{PCl}_3(g) + \text{Cl}_2(g)$**

**Which of the following conditions are correct?**

- (1)  $\Delta H < 0$  and  $\Delta S < 0$   
(2)  $\Delta H > 0$  and  $\Delta S > 0$   
(3)  $\Delta H < 0$  and  $\Delta S > 0$   
(4)  $\Delta H > 0$  and  $\Delta S < 0$

**Q18. Correct option for an endothermic gaseous reaction  
 $\text{A} + \text{B} \rightarrow 3\text{C}$  will be –**

- (1)  $\Delta H > 0, \Delta S > 0$   
(2)  $\Delta H > 0, \Delta S < 0$   
(3)  $\Delta H < 0, \Delta S > 0$   
(4)  $\Delta H < 0, \Delta S < 0$

**Q19. In which of the following there is decrease in entropy –**

- (1) When temperature is raised from 30K to 150K  
(2) When  $\text{NaHCO}_3$  changes into  $\text{Na}_2\text{CO}_3(s)$  and  $\text{CO}_2(g)$   
(3)  $\text{H}_2(g) \rightarrow 2\text{H}(g)$   
(4) Liquid crystallises into a solid

**Q20. If equal moles of following gases are taken at constant temperature and pressure then gas of highest entropy is –**

- (1)  $\text{He}(g)$   
(2)  $\text{H}_2(g)$   
(3)  $\text{CO}_2(g)$   
(4)  $\text{PCl}_5(g)$

**Q21. Which of the following statement is correct –**

- (1) Entropy of egg decreases on boiling  
(2) Entropy of rubber band decreases on stretching  
(3) Entropy decreases during fusion of ice  
(4) All of these

**Q22. A boiled egg shows a/an \_\_\_\_ in entropy –**

- (1) Increase  
(2) Decrease

- (3) No change
- (4) None of these

**Q23. Considering entropy (S) as a thermodynamic parameter, the criterion for the spontaneity of any process is –**

- (1)  $\Delta S_{system} + \Delta S_{surroundings} > 0$
- (2)  $\Delta S_{system} + \Delta S_{surroundings} = 0$
- (3)  $\Delta S_{system} > 0$  only
- (4)  $\Delta S_{surroundings} > 0$  only

**Q24. For a spontaneous process the correct statement is –**

- (1) Entropy of the system always increases
- (2) Free energy of the system always increases
- (3) Total entropy change is always negative
- (4) Total entropy change is always positive

**Q25. In a spontaneous irreversible process the total entropy of the system and surroundings**

–

- (1) Remains constant
- (2) Increases
- (3) Decreases
- (4) Zero

**Q26. The total entropy change for a system & its surroundings increases if the process is –**

- (1) Reversible
- (2) Irreversible
- (3) Exothermic
- (4) Endothermic

**Q27. In an irreversible process, the value of  $\Delta S_{system} + \Delta S_{surr}$  is –**

- (1) +ve
- (2) -ve
- (3) Zero
- (4) All of these

**Q28. Entropy of an adiabatic reversible process is –**

- (1) Positive
- (2) Negative
- (3) Zero
- (4) Constant

**Q29. Entropy change in spontaneous adiabatic process is –**

- (1) Zero
- (2)  $< 0$
- (3)  $> 0$
- (4) None of these

**Q30. In a reversible process, the value of  $\Delta S_{sys} + \Delta S_{surr}$  is –**

- (1)  $> 0$
- (2)  $< 0$
- (3)  $= 0$
- (4) All of these