



# CHEMISTRY

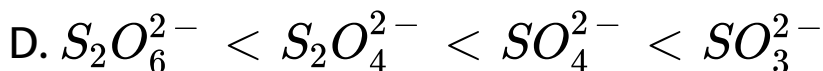
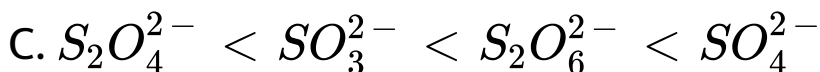
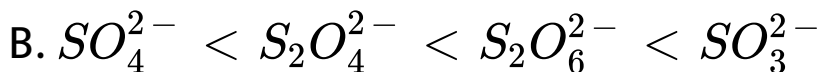
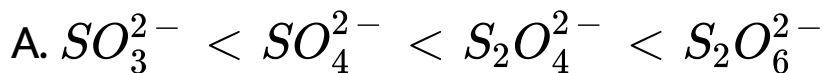
## BOOKS - FULL MARKS CHEMISTRY (TAMIL ENGLISH)

### SAMPLE PAPER 14 (UNSOLVED)

#### Part I

1. The correct increasing order of the oxidation state of sulphur in the anions

$SO_4^{2-}$ ,  $SO_3^{2-}$ ,  $S_2O_4^{2-}$ ,  $S_2O_6^{2-}$  is .....



**Answer: C**



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2. According to the Bohr Theory, which of the following transitions in the hydrogen atom will give rise to the least energetic photon?

A.  $n = 6$  to  $n=1$

B.  $n=5$  to  $n=4$

C.  $n= 5$  to  $n=3$

D.  $n=6$  to  $n = 5$

**Answer: D**



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3. The correct order of electron gain enthalpy with negative sign of F, Cl, Br and I having atomic number 9, 17, 35 and 53, respectively is .....

A.  $I > Br > Cl > F$

B.  $F > Cl > Br > I$

C.  $Cl > F > Br > I$

D.  $Br > I > Cl > F$

**Answer: C**



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4. Which of the following is not used in the conversion of para hydrogen into ortho hydrogen?

A. by heating more than  $800^{\circ}C$

B. by passing an electric discharge

C. by mixing with atomic hydrogen

D. by mixing with diamagnetic molecules

**Answer: D**



5. Assertion :  $BeSO_4$  is soluble in water while  $BaSO_4$  is not

Reason : Hydration energy decreases down the group from Be to Ba and lattice energy remains almost constant.

A. both assertion and reason are true and reason is the correct explanation of assertion

B. both assertion and reason are true but reason is not the correct explanation of assertion

C. assertion is true but reason is false

D. both assertion and reason are false

**Answer: A**



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6. A bottle of ammonia and a bottle of HCl connected through a long tube are opened simultaneously at both ends. The white ammonium chloride ring first formed will be

- A. At the center of the tube
- B. Near the hydrogen chloride bottle
- C. Near the ammonia bottle
- D. Throughout the length of the tube

**Answer: B**



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7. Gibbs's free energy is defined as .....

A.  $G = H + TS$

B.  $G = H \times TS$

C.  $G = H - TS$

D.  $G = H / TS$

**Answer: C**



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8. The equilibrium constant for a reaction at room temperature is  $K_1$  and that at 700 K is  $K_2$ . If  $K_1 > K_2$  then ...

- A. The forward reaction is exothermic
- B. The forward reaction is endothermic
- C. The reaction does not attain equilibrium
- D. The reverse reaction is exothermic

**Answer: A**



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9. A 60 ml of paracetamol pediatric oral suspension contains 3% of paracetamol. The mass percentage of paracetamol is .....

A. 50 %

B. 5 %

C. 0.5 %

D. 0.05 %

**Answer: B**



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10. When one s and three p orbitals hybridise,

A. four equivalent orbitals at  $90^\circ$  to each other will be formed

B. four equivalent orbitals at  $109^\circ 28'$  to each other will be formed.

C. four equivalent orbitals, that are lying the same plane will be formed

D. none of these

**Answer: B**



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11. Benzene and nitrobenzene can be separated by using .....

A. Simple distillation

B. Chromatography

C. Crystallisation

D. Steam distillation

**Answer: D**



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12. Acidity of phenol was explained by ....

A. I effect

B. E-effect

C. R-effect

D. Hyper conjugating effect

**Answer: C**



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13. Which of the following is optically active?

A. 2 - Methylpentane

B. Citric acid

C. Glycerol

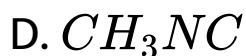
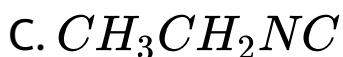
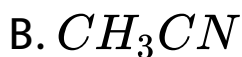
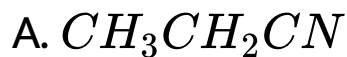
D. none of these

**Answer: A**



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14. Ethyl bromide reacts with alcoholic AgCN to form .....



**Answer: C**



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15. BOD is a measure of .....

- A. Organic pollutants in water
- B. Inorganic pollutants in water
- C. Particulate matter in water
- D. All of the above

**Answer: A**



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1. Calculate the total number of angular nodes and radial nodes present in 4p and 4d orbitals.



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2. What are isoelectronic ions? Give an example.



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3. Predict which of the following hydrides is a gas on a solid (a) HCl (b) NaH.



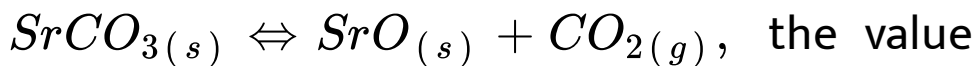
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4. What is the aim of the study of chemical thermodynamics?



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5. For the reaction,



the value of equilibrium constant  $K_P = 2.2 \times 10^{-4}$  at

1002 K . Calculate  $K_C$  for the reaction ?



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6. Define – molality.



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7. Bond angle in  $PH_4^+$  is higher than in  $PH_3$

Why?



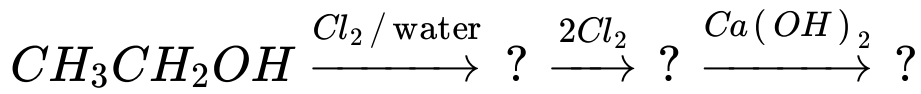
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8. Mention the uses of alkenes.



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9. Compare the reaction and identify the products.



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