



# CHEMISTRY

## BOOKS - NTA MOCK TESTS

### JEE MOCK TEST 4

#### Chemistry Single Choice

1. A 0.10 M solution of a monoprotic acid ( $d = 1.01g/cm^3$ ) is 5% dissociated what is the

freezing point of the solution the molar mass of the acid is 300 and  $K_f(H_2O) = 1.86C/m$

A.  $-0.189^\circ C$

B.  $-0.194^\circ C$

C.  $-0.199^\circ C$

D. none of these

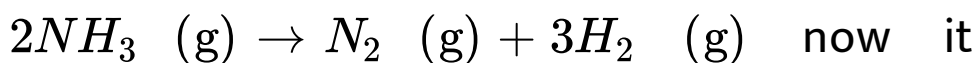
**Answer: C**



**Watch Video Solution**

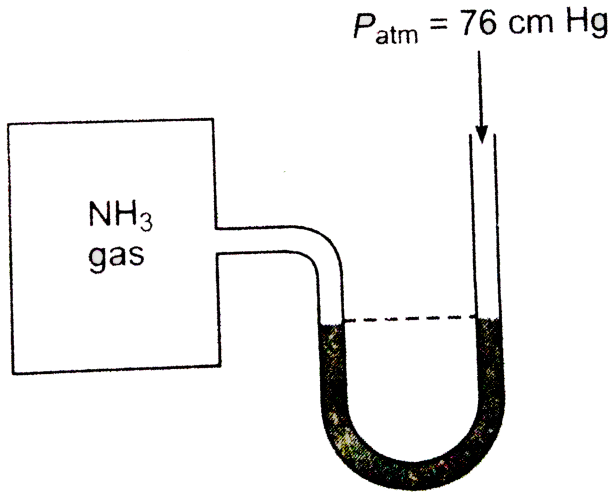
2. A manometer attached to a flask contains with ammonia gas have no difference in mercury level initially as shown in diagram.

After sparking into the flask, ammonia is partially dissociated as



have difference of 6 cm in mercury level in two columns, what is partial pressure of  $H_2 (g)$  at

equilibrium?

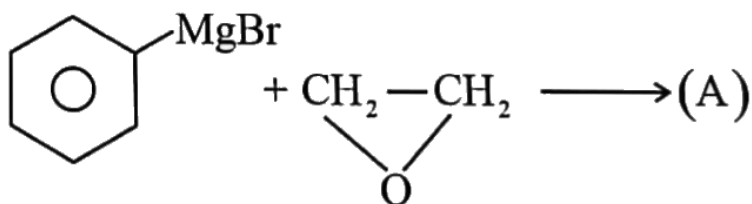


- A. 9 cm of Hg
- B. 18 cm of Hg
- C. 27 cm of Hg
- D. None of these

**Answer: C**



Watch Video Solution



3.

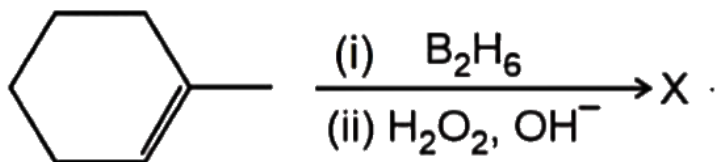
The product A is

- A. Benzyl alcohol
- B. 2-Phenylethanol
- C. 1-Phenylethanol
- D. Quinol

**Answer: B**

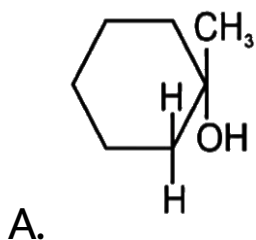


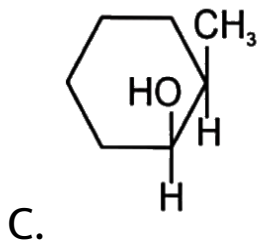
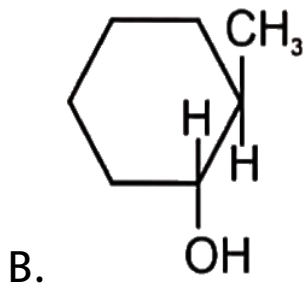
**Watch Video Solution**



**4.**

The compound X is





D. All of these

**Answer: B**

 [Watch Video Solution](#)

5. Copper becomes green when exposed to moist air for longer period because of the formation of a layer of

A. The formation of a layer of cupric hydroxide on the surface of copper

B. The formation of a layer of basic carbonate of copper on the surface of copper.

C. The formation of basic copper



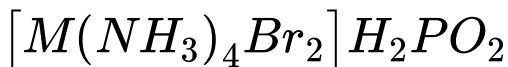
D. The formation of a layer of cupric oxide on the surface of copper.

**Answer: B**



**Watch Video Solution**

6. For any sparingly soluble salt



Given:  $\lambda_{M(NH_3)_4Br_2^+}^\circ = 400Sm^2 - mol^{-1}$ .

$\lambda_{H_2PO_2^-}^\circ = 100Sm^2 - mol^{-1}$

Specific resistance of saturated

$[M(NH_3)_4Br_2]H_2PO_2$  solution is

$200\Omega - cm$

If solubility product constant of the above salt is  $10^{-x}$ . What will be the value of  $x$ .

A.  $1.11 \times 10^{-11}$

B.  $1.11 \times 10^{-3}$

C.  $3.33 \times 10^{-6}$

D. none of these

**Answer: A**



**Watch Video Solution**

7. Which of the given statement is correct?

A. Boiling point of cis-But-2-ene  $>$  trans-

But-2-ene

B. Boiling point of trans-But-2-ene  $>$  cis-

But-2-ene

C. Boiling point of cis-But-2-ene = trans-But-

2-ene

D. Boiling point cannot be predicted

**Answer: A**



**Watch Video Solution**

8. Which one of the following pairs of substances on reaction will not not evolve  $H_2$  gas?

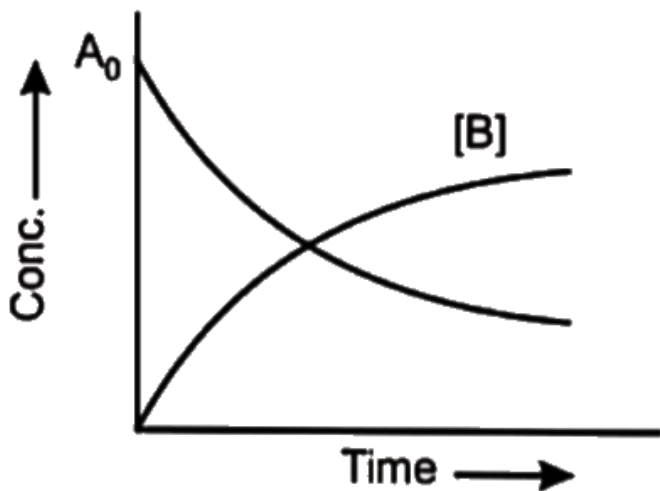
- A. Iron and steam
- B. Iron and  $H_2SO_4$  (aqueous)
- C. Copper and HCl (aqueous)
- D. Sodium and ethyl alcohol

Answer: C



Watch Video Solution

9. At the point of intersection of the two curves shown the concentration of B is given by \_\_\_\_\_ for the first reaction  $A \rightarrow nB$ .



A.  $\frac{nA_0}{2}$

B.  $\frac{A_0}{n-1}$

C.  $\frac{nA_0}{n+1}$

D.  $\left(\frac{n-1}{n+1}\right)A_0$

**Answer: C**



**Watch Video Solution**

**10.** The total number possible isomers for the complex compound  $[Cu(NH_3)_4][PtCl_4]$  are

A. 4

B. 5

C. 6

D. 3

**Answer: A**



**Watch Video Solution**

**11.** What electronic transition in  $Li^{2+}$  produces the radiation of same wavelength as

the first line in the Balmer's series of Hydrogen spectrum-

A.  $n_2 = 3$  to  $n_1 = 2$

B.  $n_2 = 6$  to  $n_1 = 3$

C.  $n_2 = 9$  to  $n_1 = 6$

D.  $n_2 = 9$  to  $n_1 = 8$

**Answer: C**



**Watch Video Solution**



12. The coagulation of  $10\text{cm}^3$  of gold sol by  $1\text{ml} 10\% \text{NaCl}$  solution is completely prevented by addition of  $0.025\text{g}$  of starch to it.

The gold number of starch is

A. 0.025

B. 0.25

C. 2.5

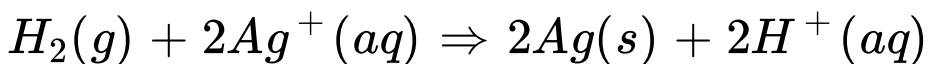
D. 250

**Answer: D**



Watch Video Solution

13. Calculate  $\Delta_r G$  for the reaction at  $27^\circ C$



Given :  $P_{H_2} = 0.5$ ,  $[Ag^+] = 10^{-5} M$ ,

$[H^+] = 10^{-3} M$ ,  $\Delta_f G^\circ [Ag^+(aq)]$

$$= 77.1 kJ/mol$$

A.  $-154.2 kJ/mol$

B.  $-179.9 kJ/mol$

C.  $-129.5 kJ/mol$

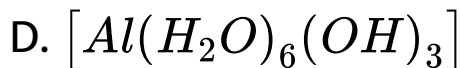
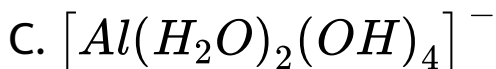
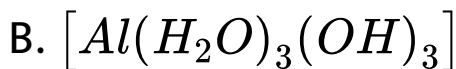
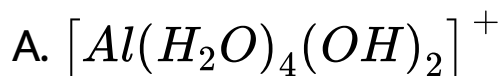
D. none of these

**Answer: C**



**Watch Video Solution**

**14.** The dissolution of  $Al(OH)_3$  by a solution of  $NaOH$  results in the formation of

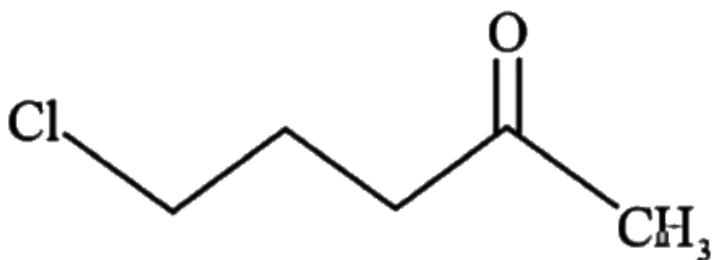


Answer: C

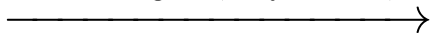


Watch Video Solution

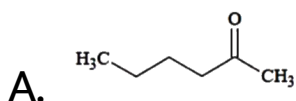
15. The major product in the following reaction is

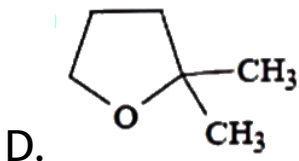
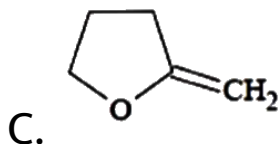
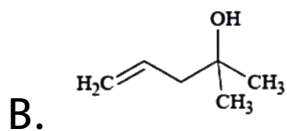


1.  $\text{CH}_3\text{MgBr}$ , dry ether,  $0^\circ$



2. aqueous acid





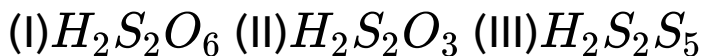
**Answer: D**



**Watch Video Solution**

**16.** Identify the correct sequence of increasing number of  $\pi$ -bonds in the structure of the

following molecules:



A.  $I < II < III$

B.  $II < III < I$

C.  $II < I < III$

D.  $I < III < II$

**Answer: B**



**Watch Video Solution**

17. A solid  $XY$  has  $NaCl$  structure. If radius of  $X^+$  is  $100\text{pm}$ . What is the radius of  $Y^-$  ion ?

- A. 120 pm
- B. 136.6 to 241.6 pm
- C. 136.6 pm
- D. 241.6 pm

**Answer: B**



**Watch Video Solution**

**18.** When spontaneous process occurs then free energy of a system

A. Must decrease

B. Must increase

C. Must remain stable

D. None of the given options

**Answer: A**



**Watch Video Solution**



**19.** Four metals and their methods of refinement are given

(i) *Ni, Cu, Zr, Ga*

(ii) Electrolysis, Val Arkel process, zone refining, Mond's process

Choose the right method for each :

A. Ni : Electrolysis, Cu : van-arkel process, Zr : Zone refining , Ga : Mond's process

B. Ni : Mond's process, Cu : Electrolysis, Zr : van-arkel process , Ga : Zone refining

C. Ni : Mond's process, Cu : van-arkel  
process , Zr : Zone refining, Ga :  
Electrolysis

D. Ni : Electrolysis ,Cu : Zone refining , Zr :  
van-arkel process , Ga : Mond's process

**Answer: B**



**Watch Video Solution**

20. A gas occupies 2 litre at STP. It is provided 58.63 joule heat so that its volume becomes 2.5litre at 1 atm. Calculate change in its internal energy

A. 8.63

B. 7.62

C. 12.9

D. 5.54

**Answer: A**



Watch Video Solution

## Chemistry Subjective Numerical

1. Bromine in excess is dropped to a 0.01 M  $SO_2$ . All of  $SO_2$  is oxidized to  $H_2SO_4$  and the excess  $Br_2$  is removed by flushing with gaseous  $N_2$ . Determine the pH of the resulting solution assuming  $K_{a1}$  of  $H_2SO_4$  vary large &  $K_{a2} = 10^{-2}$ . Take the value of  $\log(3.24) = 0.51$ .



Watch Video Solution

2. Among the following, the total number of compounds containing at least one  $sp^3$  hybridized carbon atom is//are-

Acetylene, dimethyl ether, propan-1-ol, ethane, 2-chlorobutane



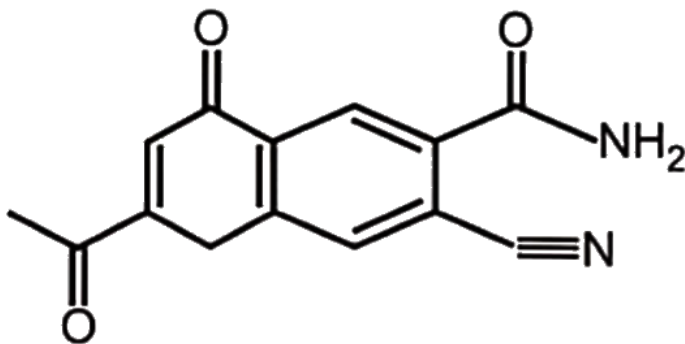
[Watch Video Solution](#)

3. Species like  $SbCl_6^-$ ,  $SnCl_6^{2-}$ ,  $XeF_5^+$  and  $IO_6^{5-}$  has hybridization as  $sp^3d^{x-1}$ . The value of "x" is



Watch Video Solution

4. Find out the double bond equivalent (DBE) value of the given following compound:



Watch Video Solution

5.  $2.68 \times 10^{-3}$  moles of solution containing anion  $A^{n+}$  require  $1.61 \times 10^{-3}$  moles of  $MnO_4^-$  for oxidation of  $A^{n+}$  to  $AO_3^-$  in acidic medium. What is the value of  $n$ ?



**Watch Video Solution**