



# CHEMISTRY

## BOOKS - NTA MOCK TESTS

### NTA TPC JEE MAIN TEST 36

#### Chemistry

1. According to the valence shell electron pair repulsion (VSEPR) theory, what is the geometry of  $ClO_3^-$  ion ?

A. Planar triangular

B. Pyramidal

C. Tetrahedral

D. Square planar

**Answer: B**



**View Text Solution**

2. The electronic configurations

$1s^2, 2s^2 2p^5 3s^1$  describes which one of the

following ?

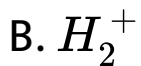
- A. An excited state of fluorine
- B. The ground state of neon
- C. The excited state of  $O^{2-}$
- D. The ground state of fluoride ion ( $F^-$ )

**Answer: C**



**View Text Solution**

**3. Which of the following species does not exist ?**



**Answer: C**



**View Text Solution**

4. Which of the following is an ore of Mg metal

?

A. Cryolite

B. Carnallite

C. Malachite

D. Cassiterite

**Answer: B**



**View Text Solution**

5. Which of the following exchange both cation and anion from hard water ?

A. Zeolite

B. Synthetic ion exchange resin

C. Polyphosphates of sodium

D. Addition of  $EDTA^{4-}$

**Answer: B**



**View Text Solution**

6. A chain of three  $SiO_4$  is present in minerals kinoite, which is a silicate anion tetrahedral. If total three  $SiO_4$  are joined such that one of

the oxygen atoms in the corner is shared between two tetrahedra, calculate the overall charge on silicate anion.

A.  $-4$

B.  $-8$

C.  $-6$

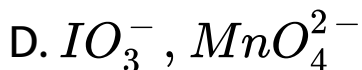
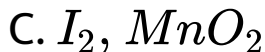
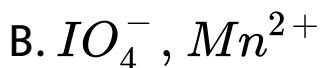
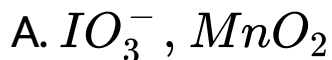
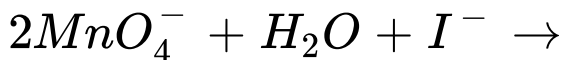
D.  $-2$

**Answer: B**



**View Text Solution**

7. Which products are formed in the following reaction in the alkaline medium ?



**Answer: A**



**View Text Solution**



8. The halide of alkali metal least soluble in water:

A. NaCl

B. KBr

C. KCl

D. CsI

**Answer: D**



**View Text Solution**

9. Which of the following statements is correct regarding phenol ?

A. It is insoluble in water

B. It has a lower melting point compared to aromatic hydrocarbons of comparable molecular weight.

C. It has a higher boiling point than toluene.

D. It does not show acidic property.

**Answer: C**



[View Text Solution](#)

10. H-bonding is the reason for dimerisation of

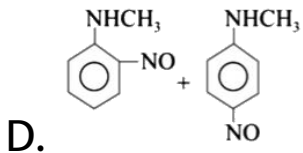
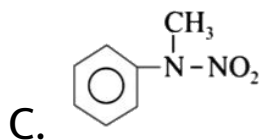
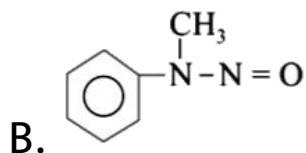
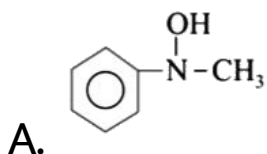
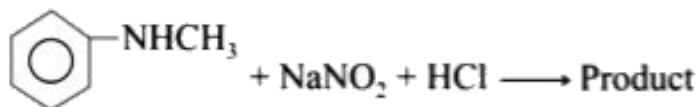


**Answer: C**



[View Text Solution](#)

11. Predict the product:

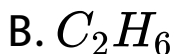


**Answer: B**



**View Text Solution**

**12.** On reaction with water, a metal carbide gives a colourless gas which burns readily in air. This gas, when passed through an ammonical silver nitrate solution, forms a precipitate. Identify the evolved gas.



C.  $C_2H_4$

D.  $C_2H_2$

**Answer: D**



**View Text Solution**

**13.** What is the increasing order of stability of the three main conformations (i.e., Eclipse, Anti, Gauche) of 2-fluoroethanol ?

A. Eclipse, Gauche, Anti

B. Gauche, Eclipse, Anti

C. Eclipse, Anti, Gauche

D. Anti, Gauche, Eclipse

**Answer: C**



**View Text Solution**

**14.** Percentage of cationic vacancies in  $Fe_{0.93}O$

is:

A. 0.0007

B. 0.07

C. 0.014

D. 0.14

**Answer: B**



**View Text Solution**

**15.** An aqueous solution of a salt  $MX_2$  at certain temperature has a van't Hoff factor of 2. The degree of dissociation for this solution of the salt is :



A. 0.5

B. 0.8

C. 0.67

D. 0.33

**Answer: A**



**View Text Solution**

**16.** How much oxygen is required for the complete combustion of 2.8 kg of ethylene?

A. 2.8 kg

B. 6.4 kg

C. 9.6 kg

D. 96 kg

**Answer: C**



**View Text Solution**

**17.** At low pressure, the van der Waals equation become:

A.  $PV_m = RT$

B.  $P(V_m - b) = RT$

C.  $\left(P + \frac{a}{V_m^2}\right)V_m = RT$

D.  $P = \frac{RT}{V_m} + \frac{a}{V_m^2}$

**Answer: C**



**View Text Solution**

**18.** The second Bohr orbit energy of the hydrogen atom is  $-328\text{kJ mol}^{-1}$ . What is the energy of the fourth Bohr orbit?

A.  $-1312\text{kJ mol}^{-1}$

B.  $-82\text{kJ mol}^{-1}$

C.  $-41\text{kJ mol}^{-1}$

D.  $-164\text{kJ mol}^{-1}$

**Answer: B**



**View Text Solution**

**19.** Correct statement about chemical adsorption is:-

A. Adsorption of gases on charcoal surface

is an example of it

B. It has highly specific nature

C. Activation energy is comparatively low

D. It is multilayered

**Answer: B**



**View Text Solution**

20. Heat of neutralisation of  $H_2C_2O_4$  (oxalic acid) is  $-26\text{kcal mol}^{-1}$ . Hence, dissociation energy of  $H_2C_2O_4$

A.  $12.3\text{kcal mol}^{-1}$

B.  $1.4\text{kcal mol}^{-1}$

C.  $-13.7\text{kcal mol}^{-1}$

D.  $-1.4\text{kcal mol}^{-1}$

**Answer: B**



**View Text Solution**

21. Predict the number of unpaired electrons in a square planar  $d^8$  ion.



[View Text Solution](#)

22. A certain quantity of an ideal gas is expanded from 20 L to 60 L isothermally in three steps. The pressure of these three states are 1.5 atm, 1.2 atm and 1 atm respectively. Now, the gas is brought back to the initial state by the given three steps again. Calculate

the total work done on the system during this cycle in J. (Take:  $1 \text{ atm} \cdot \text{L} = 100 \text{ J}$ )



[View Text Solution](#)

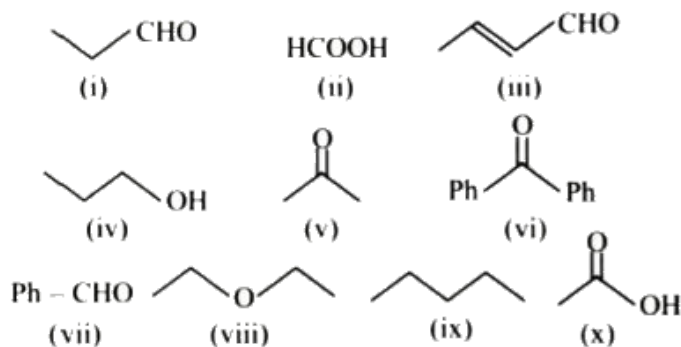
**23.** 1026 g of sucrose on hydrolysis gives how many mole(s) of glucose? (Atomic wt : C = 12 u, H = 1u, O = 16 u)



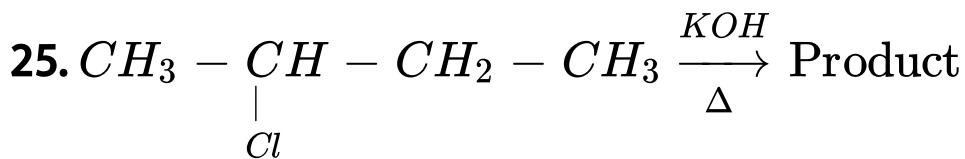
[View Text Solution](#)



24. How many of the following compounds can be reduced by the Tollen's reagent ?



[View Text Solution](#)



Possible number of elimination products

(alkene) of the given reaction is ?

 [View Text Solution](#)

26. Number of Nitrogen-atoms present in melamine are:

 [View Text Solution](#)

27. For the non-stoichiometric reaction:

$A + B \rightarrow C + D$ , the following kinetic data were obtained in three separate experiments,

all at 298K.

Initial concentration (A)	Initial concentration (B)	Initial rate of formation of C ( $\text{molL}^{-1} \text{s}^{-1}$ )
0.2M	0.2M	0.12M
0.2M	0.4M	0.24M
0.4M	0.2M	0.24M

The order of the reaction is.



[View Text Solution](#)

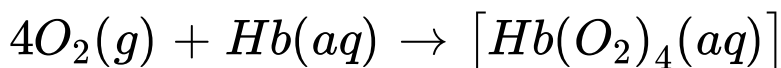
28. The standard emf of a Daniel cell is \_\_\_\_\_ V.



[View Text Solution](#)

29. Hemoglobin (Hb) protein transport  $O_2$  in blood and each Hb can bind  $4O_2$ , molecules. In discussing protein oxygen binding capacity, biochemists use a measure called the  $P^{50}$  value, defined as the partial pressure of oxygen at which 50% of hemoglobin is saturated. Fetal hemoglobin has a  $P^{50}$  value of 20 torr and adult has  $P^{50}$  value of 40 torr.

For the following equilibrium:



What is the value of  $K_{\text{fetal}} / K_{\text{adult}}$  ?

[Where K represents equilibrium constant.]



[View Text Solution](#)

30. What is the oxidation number of X in an interhalogen compound  $XY_7$  ? (X and Y are halogens)



[View Text Solution](#)