



# CHEMISTRY

## BOOKS - NTA MOCK TESTS

### NTA JEE MOCK TEST 77

#### Chemistry

1. A polymer containing nitrogen is

A. Bakelite

B. Dacron

C. Rubber

D. Nylon - 6, 6

**Answer: D**



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2.  $ZnCl_2$  reacts with excess of  $NH_3$  solution

to produce

A. A ppt of  $Zn(OH)_2$

B. A complex ion  $Zn(OH)_4^{2-}$  of tetrahedral geometry

C. A complex ion  $Zn(NH_3)_4^{2+}$  of tetrahedral geometry

D. A complex ion  $Zn(NH_3)_4^{2+}$  of square planar geometry

**Answer: C**



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3. For  $Ag_2CO_3$ ,  $K_{sp} = 6.2 \times 10^{-12}$ . For  $AgCl$ ,  $K_{sp} = 2.8 \times 10^{-10}$ . Solid  $Ag_2CO_3$  and solid  $AgCl$  are added to a beaker containing  $Na_2CO_3(aq)$ . Under these conditions the  $[CO_3^{2-}] = 1.00M$ . Calculate the  $[Cl^-]$  in solution when equilibrium is established.

A.  $1.1 \times 10^{-4}$

B.  $1.26 \times 10^{-8}$

C. 0.15

D.  $2.8 \times 10^{-6}$

**Answer: A**



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4. The vapour density of  $N_2O_4$  at a certain temperature is 30. Calculate the percentage dissociation of  $N_2O_4$  this temperature.

A. 53.3 %

B. 106.6 %

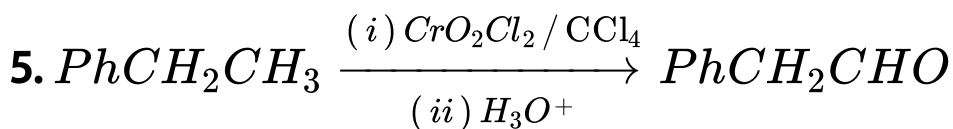
C. 26.7 %

D. None of these

**Answer: A**



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The above reaction is an example of which name reaction?

A. Rosenmund reduction

B. Birch reduction

C. Mendius reduction

D. Etard reduction

**Answer: D**



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6. For a chemical reaction, the free energy change ( $\Delta G$ ) is negative. The reaction is

A. A spontaneous reaction

B. An equilibrium reaction

C. A non - spontaneous reaction

D. Characterised by  $r_f = r_b$  (where,  $r_f$  and  $r_b$  are rates of forward and backward reaction respectively)

**Answer: A**



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7. At very high pressure, the compressibility factor of one mole of a gas is given by :

A.  $1 + \frac{Pb}{RT}$



B.  $\frac{Pb}{RT}$

C.  $1 - \frac{Pb}{RT}$

D.  $1 - \frac{b}{(VRT)}$

**Answer: A**



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**8. Identify the correct statement**

A. Gypsum contains a lower percentage of calcium than plaster of paris

B. Gypsum is obtained by heating plaster of paris

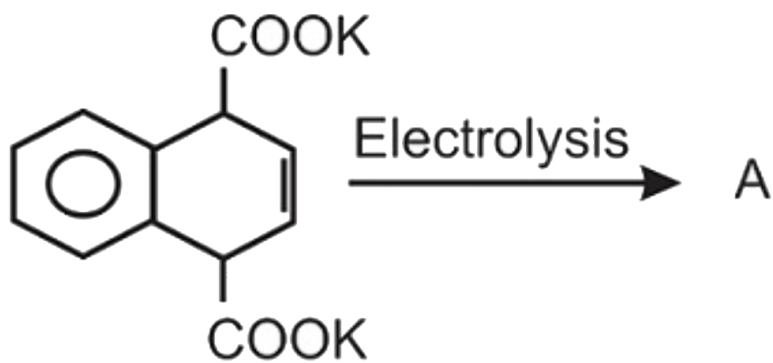
C. Plaster of paris can be obtained by hydration of gypsum

D. None of these

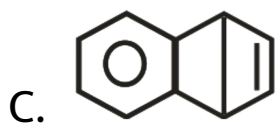
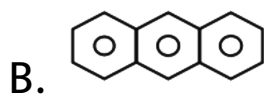
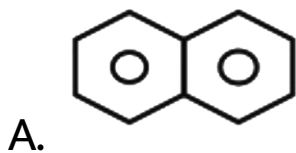
**Answer: A**

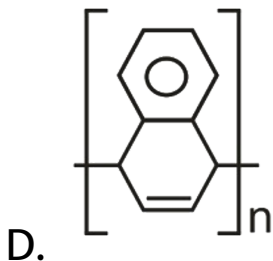


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A is :

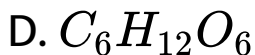
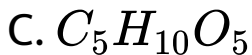
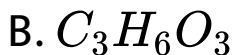
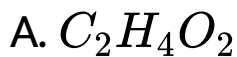




**Answer: A**

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**10.** A solution containing 1.8 g of a compound (empirical formula  $CH_2O$ ) in 40 g of water is observed to freeze at  $-0.465^\circ\text{C}$ . The molecules formula of the compound is ( $K_f$  of water =  $1.86\text{kg Kmol}^{-1}$ ):



**Answer: D**



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11. Amongst  $Ni(CO)_4$ ,  $[Ni(CN)_4]^{2-}$  and  $[NiCl_4]^{2-}$

A.  $sp^3$ ,  $dsp^2$ ,  $dsp^2$

B.  $sp^3$ ,  $dsp^2$ ,  $sp^3$

C.  $sp^3$ ,  $sp^3$ ,  $dsp^2$

D.  $dsp^2$ ,  $sp^3$ ,  $sp$

**Answer: B**



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**12.** Which of the following species is paramagnetic in nature?

A. Carbonium ion

B. Free radical

C. Singlet Carbene

D. Nitrene

**Answer: B**



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**13.** When two compounds  $ACl_3$  and  $DCl_3$  of two elements A and D are mixed together a compound  $ADCl_6$  is formed. Structural

analysis showed that  $DCl_3$  is trigonal planar and  $ACl_3$  is trigonal pyramidal. If anion has see - saw shape then shape of cation formed is

- A. Linear
- B. Bent
- C. Pentagonal bipyramidal
- D. Trigonal planar

**Answer: A**



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14.  $Mn^{2+}$  can be converted into  $Mn^{7+}$  by reacting with

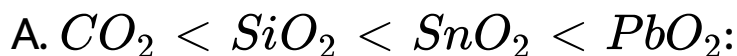


**Answer: C**



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15. In which of the following arrangements, the sequence is not strictly according to the property written against it ?



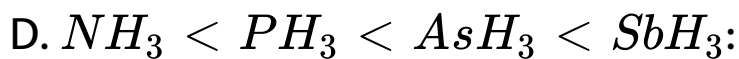
Increasing oxidising power



acid strength



ionisation energy



Increasing basic strength

**Answer: D**



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**16.** Which of the following is most reactive towards nucleophilic substitution reaction?

A. Ethyl acetate

B. Acetic anhydride

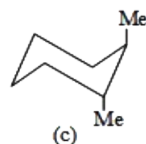
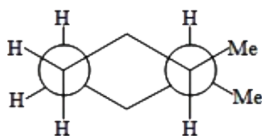
C. Acetamide

D. Acetyl chloride

**Answer: D**

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**17.** The correct stability order of the following species is



A.  $c < a < b$

B.  $c = b < a$

C.  $c < a = b$

D.  $a = b = c$

**Answer: C**



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**18.** The energy of an electron in first Bohr's orbit of H atom is  $-13.6\text{eV}$ . The energy value

of electron in the first excited state of  $Li^{2+}$  is

:

A.  $-3.0eV$

B.  $-30.6eV$

C.  $-13.6eV$

D. Both B & C are correct

**Answer: D**



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19. Electron gain enthalpy and ionisation energy of an atom are  $-a$  and  $+b$  eV respectively. The electronegativity of that atom on Mulliken scale is given by

A.  $a - b$

B.  $\frac{b - a}{2}$

C.  $a + b$

D.  $\frac{a + b}{2}$

**Answer: D**



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20. The number of NaCl molecules in unit cell of its crystal is

A. 4

B. 6

C. 2

D. 8

**Answer: A**



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21. Phenol  $\xrightarrow[H_2SO_4]{Na_2Cr_2O_7}$  X The ratio of the number of  $\sigma$  to  $\pi$  bonds in the products X is

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22. How many of the following are the minerals of aluminium?

Magnesite, cryolite, kaolinite, malachite, epsom salt, bauxite, cuprite

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23. For the 1<sup>st</sup> order reaction:

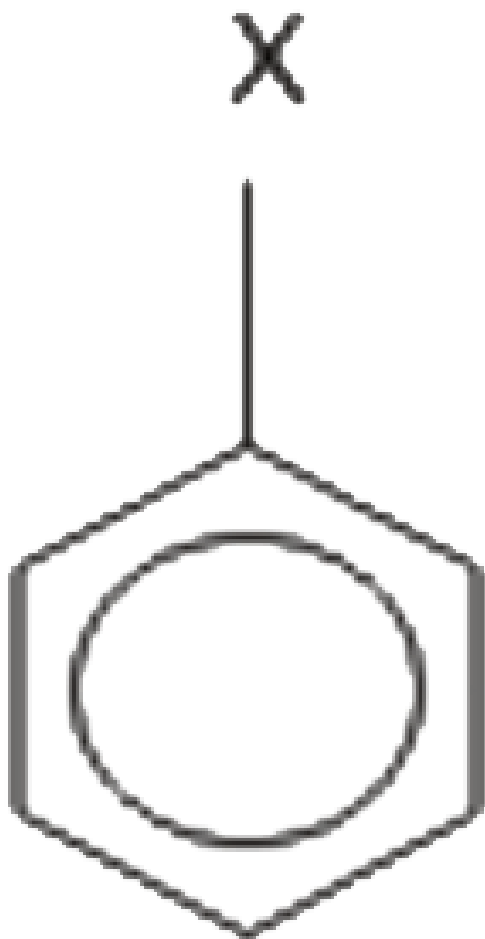
$A(g) \rightarrow 2B(g) + C(s)$ , the  $t_{\frac{1}{2}} = 24$  min. The

reaction is carried out taking certain mass of A enclosed in a vessel in which it exerts a pressure of 400 mm Hg. The pressure of the reaction mixture in mm Hg after expiry of 48 min will be



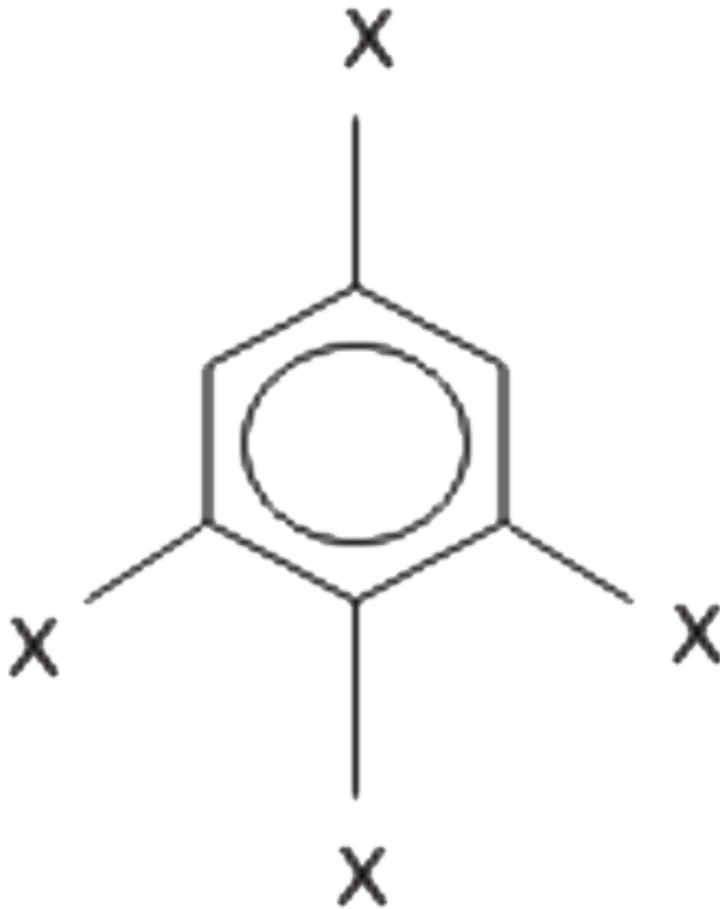
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24. The dipole moment of



is 1.5 D.

The dipole Moment of



in Debye



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**25.** The standard emf of a cell having one electron change is found to be  $0.591V$  at  $25^{\circ}C$ , The equilibrium constant of the reaction is :



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