



# CHEMISTRY

## BOOKS - NTA MOCK TESTS

### NTA NEET TEST 64

#### Chemistry

1. What weight of the non-volatile solute urea' ( $NH_2 - CO - NH_2$ ) needs to be dissolved in 100g of water in order to decrease the vapour pressure of

water by 25 %? What will be the molality of the solution?

A. 18.52 m

B. 62.45 m

C. 28.52 m

D. 35.64 m

**Answer: A**



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2. Alkyl cyanides undergo Stephen reduction to produce

A. Aldehyde

B. Secondary amine

C. Primary amine

D. Amide

**Answer: A**



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3. The reaction of white phosphorus with aqueous NaOH gives phosphine along with another phosphorus containing compound. The reaction type

the oxidation states of phosphorus in phosphine and the other product are respectively.

- A. Redox reaction , -3 and - 5
- B. Redox reaction , +3 and +5
- C. Disproportion reaction , -3 and +1
- D. Disproportion reaction , -3 and +3

**Answer: C**

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4. Concentrated nitric acid used for laboratory works is 68% nitric acid by mass in aqueous solution. What

should be the molarity of such a sample of the acid if the density of solution is  $1.504 \text{ gmL}^{-1}$  ?

A. 26.23 M

B. 16.23 M

C. 6.23 M

D. 46.23 M

**Answer: B**



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5. Ziegler -Natta catalyst is an organometallic compound of which metal

A. Iron

B. Titanium

C. Rhodium

D. Manganese

**Answer: B**



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6. The geometrical arrangement and shape of  $I_3^-$  are respectively

A. Trigonal bipyramidal geometry , linear

B. Hexagonal geometry , T - shape

C. Triangular planar geometry , triangular shape

D. Tetrahedral geometry m pyramidal shape

**Answer: A**



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7. Heat evolved during chemisorption lies in the range of

A. 4 - 20 kJ/ mole

B. 80-240 kJ/mol

C. 20-40 kJ/mol

D. 500-1000 kJ/mol

**Answer: B**



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8. Alkyl halides react with dialkyl copper reagents to give

- A. Alkenyl halides
- B. Alkanes
- C. Alkyl copper halides
- D. Alkenes

**Answer: B**



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9. The reaction of , water gas ( $CO + H_2$ ) +  $H_2$  at 673 K, 300 atmosphere in presence of the catalyst  $Cr_3O_3 / ZnO$  is used for the manufacture of

A. HCHO

B. HCOOH

C.  $CH_3OH$

D.  $CH_3COOH$

**Answer: C**



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10. An ideal gas undergoes isothermal expansion at constant pressure . During the process.

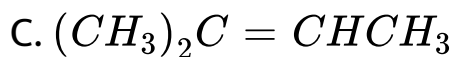
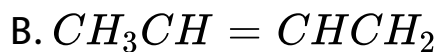
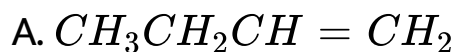
- A. Enthalpy remains constant but entropy increases
- B. Enthalpy decreases but entropy increases
- C. Enthalpy increases but entropy decreases
- D. Both enthalpy and entropy remain constant

**Answer: A**



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11. 2-Methylbutan -2-ol can be obtained by the acid catalyzed hydration of



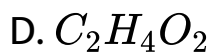
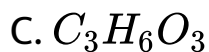
D. Either of the three

**Answer: C**



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12. An organic compound with C =40 % and H= 6.7% will have the empirical formula



**Answer: B**



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13. Select correct statement :

- A. Geometrical isomers of complexes may differ in dipole moment and visible / UV spectra
- B. Complexes of the type  $[Ma_3b_3]$  can also have facial (fac) and meridional (mer) isomer
- C. No optical isomer exists for the complex trans -  $[Co(en)_2Cl_2]^+$
- D. All are correct

**Answer: D**



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14.  $Pb(CH_3COO)_2$  gives .....colour with  $H_2S$

A. Orange

B. Red

C. Black

D. White

**Answer: C**



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**15.** Mixture of two liquids A and B is placed in cylinder containing piston. Piston is pulled out isothermally so that volume of liquid decreases but that of vapour increases. When negligibly small amount of liquid was

remaining the mole fraction of A in vapour is 0.4.

Given  $P_A^\circ = 0.4 \text{ atm}$  and  $P_B^\circ = 1.2 \text{ atm}$  at the experimental temperature. Calculate the total pressure at which the liquid has almost evaporated.

(Assume ideal behaviour)

A. 0.22 atm

B. 0.431 atm

C. 0.667 atm

D. 1 atm

**Answer: C**



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16. A hydrogen atom is paramagnetic . A hydrogen molecule is

- A. Diamagnetic
- B. Paramagnetic
- C. Ferromagnetic
- D. None of these

**Answer: A**



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17. HA is a weak acid and BOH is a weak base. For which of the following salts the extent of hydrolysis is



independent of the salt in its aqueous solution

A. NaA

B. NaB

C. BCl

D. BA

**Answer: D**



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**18.**  $116\text{mg}$  of a compound on vaporisation in a Victor

– Meyer's apparatus displaced  $44.8\text{mL}$  of air

measured at *S.T.P.* The molecular mass of the compound is

A. 58 g/mol

B. 0.48 g/mol

C. 116g/mol

D. 44.8 g/mol

**Answer: A**



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**19.** Which intermolecular force is most responsible in allowing xenon gas to liquefy ?

A. London forces

B. Ion - dipole

C. Ionic

D. Dipole - dipole

**Answer: A**

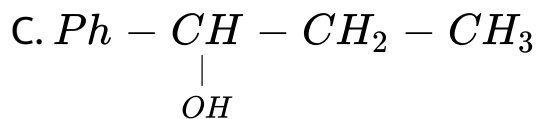


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20.  $Ph - CH_2 - CH = CH_2 \xrightarrow{dil. H_2SO_4} A$ , A is

A.  $Ph - CH_2 - CH_2 - CH_2 - OH$

B.  $Ph - CH_2 - \underset{\substack{| \\ OH}}{CH} - CH_3$



**Answer: C**



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21. Root mean square velocity of  $O_2$  at STP is (in  $cm / s$ )  
)

A.  $4.61 \times 10^4$

B.  $2.6 \times 10^4$

C.  $46.1 \times 10^4$

D.  $26.0 \times 10^4$

**Answer: A**



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**22. Which of the following is a trisaccharide ?**

A. Stachyrose

B. Sucrose

C. Raffinose

D. Ribose

**Answer: C**

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23. At constant pressure , addition of helium to the reaction system :  $N_2(g) + 3H_2(g) \rightleftharpoons 2NH_3(g)$

- A. Favors the formation of ammonia
- B. Reduces the formation of ammonia
- C. Does not affect the position of equilibrium
- D. Reduces the dissociation of ammonia

**Answer: B**

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24. Which of the following statement is false ?

A. Cannizzaro reaction is given by aldehydes in presence of alkali

B. Aldol condensation is given by aldehydes in presence of alkali

C. Aldol condensation is given by aldehydes and ketones in presence of acids

D. None

**Answer: D**



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25. Calcium is obtained by the

- A. Electrolysis of molten  $CaCl_2$
- B. Electrolysis of solution of  $CaCl_2$  in water
- C. Reduction of  $CaCl_2$  with carbon
- D. Roasting of lime stone

**Answer: A**



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26. Which of the following bases is not present in DNA

?



A. adenine

B. cytosine

C. uracil

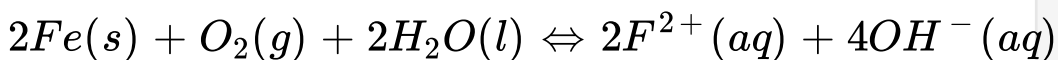
D. thymine

**Answer: C**



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**27.** What is the standard cell Potential ( $E_{\text{cell}}^{\circ}$ ) for following cell reaction ?



Given

$$E_{Fe^{2+}(aq) | Fe}^{\circ} = -0.44V$$

$$E_{O_2(g) | H_2O | OH}^{\circ} = 0.4V$$

A.  $E_{cell}^{\circ} = 0.48V$

B.  $E_{cell}^{\circ} = 0.04V$

C.  $E_{cell}^{\circ} = + 0.84V$

D.  $E_{cell}^{\circ} = + 1.28V$

**Answer: C**



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**28.** The correct decreasing order of electropositive character among the following elements is:

Fe, Sc, Rb, Br, Te, F, Ca

A.  $Fe > Sc > Rb > Br > Te > F > Ca$

B.  $Ca > Rb > Sc > Fe > Te > F > Br$

C.  $Rb > Ca > Sc > Fe > Br > Te > F$

D.  $Rb > Ca > Sc > Fe > Te > Br > F$

**Answer: D**



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**29.** IUPAC name of given organic compound

$(CH_3)_2C(CH_2CH_3)CH_2CH(Cl)CH_3$  is -

A. 5 - Chloro - 3, 3 - dimethylhexane

B. 5 - Chloro - 2 - ethyl - 2 methylpentane

C. 2 - Chloro - 4 - ethyl - 4 methylpentane

D. 2 - Chloro - 4, 4 - dimethylhexane

**Answer: D**



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**30.** Trans - esterification is the process of

A. Conversion of an aliphatic acid to ester

B. Conversion of an aromatic acid to ester

C. Conversion of one ester to another ester

D. Conversion of an ester into its components

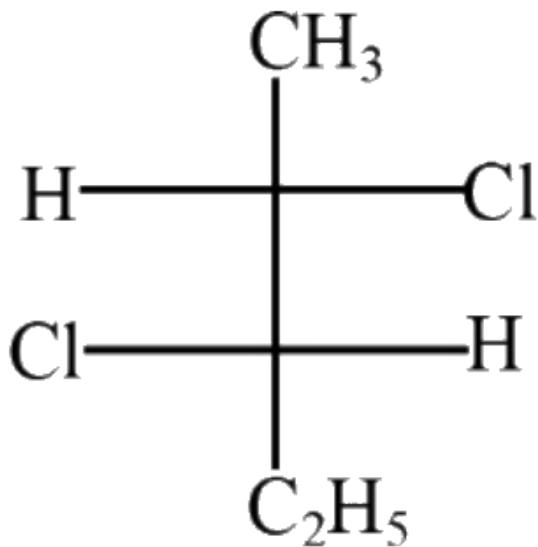
namely acid and alcohol

**Answer: C**



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**31.** The absolute configuration of the following compound is :



A. 2S, 3R

B. 2S, 3S

C. 2R, 3S

D. 2R, 3R

**Answer: B**



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32. The minimum energy required for the emission of photoelectron from the surface of a metal is  $4.95 \times 10^{-19} J$ . Calculate the critical frequency of the photon required to eject the electron .

$$h = 6.6 \times 10^{-34} J \text{ sec}$$

A.  $7.5 \times 10^{14} s^{-1}$

B.  $7.5 \times 10^{13} s^{-1}$

C.  $7.5 \times 10^{16} s^{-1}$

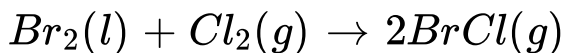
D.  $7.5 \times 10^{19} s^{-1}$

**Answer: A**



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**33.** The enthalpy and entropy change for the reaction:



are  $30\text{kJmol}^{-1}$  and  $105\text{JKmol}^{-1}$  respectively. The

temperature at which the reaction will be in equilibrium is:-

A. 273 K

B. 450 K

C. 300 K

D. 285 . 7 K

**Answer: D**





34. Identify the incorrect statement :

A. The S - S - S bond angles in the  $S_8$  and  $S_6$  rings are the same .

B. Rhombic and monoclinic Sulphur have  $S_8$  molecules

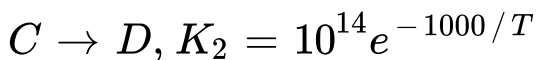
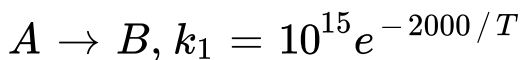
C.  $S_2$  is paramagnetic like oxygen .

D.  $S_8$  ring has a crown shape

**Answer: A**



35. For a gaseous reaction , following date is given :



The temperature at which  $k_1 = k_2$  is

A. 1000 K

B. 2000 K

C. 868.82 K

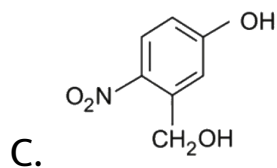
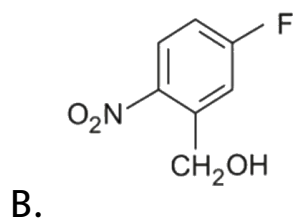
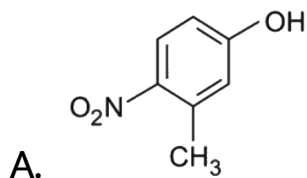
D. 434.2 K

**Answer: D**



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36. What is the compound A in the given reaction :



D. None

**Answer: A**



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37. The most common oxidation states of cerium are

A. +2, +4

B. +3, +4

C. +3, +5

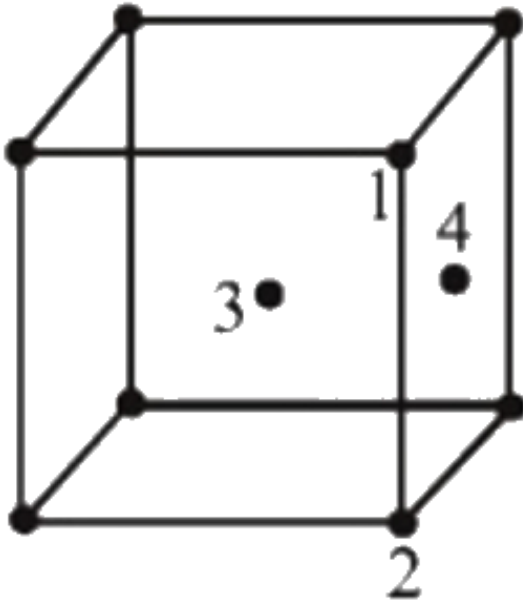
D. +2, +3

**Answer: B**



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38. In an f.c.c unit cell , atoms are numbered as shown below . The atoms not touching each other are (Atom numbered 3 is face centre of front face )



A. 3 & 4

B. 1 & 3

C. 1 & 2

D. 2 & 4

**Answer: C**



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**39.** The molecular formula  $C_3H_9N$  cannot represent

A.  $1^\circ$  amine

B.  $2^\circ$  amine

C.  $3^\circ$  amine

D. Quaternary salt

**Answer: D**

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40. A solution of ( + )-1-chloro-1-phenylethane in *t*-toluene racemizes slowly in the presence of a small amount of  $SbCl_5$  due to the formation of

- A. Carbocation
- B. Free radical
- C. Carbonion
- D. Carbene

**Answer: A**

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41. Which one of the following metals cannot be extracted by carbon reduction?

A. Pb

B. Al

C. Hg

D. Zn

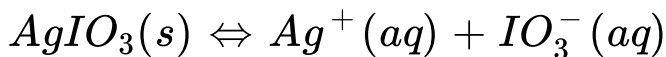
**Answer: B**



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42. In a saturated solution of the sparingly soluble strong electrolyte  $AgIO_3$  (molecular mass = 283) the equilibrium which sets in is



If the solubility product constant  $K_{SP}$  of  $AgIO_3$  at a given temperature is  $1.0 \times 10^{-8}$ , what is the mass of  $AgIO_3$  contained in  $100mL$  of its saturated solution?

- A.  $1.0 \times 10^{-4}g$
- B.  $28.3 \times 10^{-2}g$
- C.  $1.0 \times 10^{-7}g$
- D.  $2.83 \times 10^{-3}g$

**Answer: D**



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43. The  $\gamma$  - form of iron has fcc structure (edge length 386) and  $\beta$  - form has bcc structure (edge length 290 pm) . The ratio of density in  $\gamma$  - form and  $\beta$  - form is :

A. 0.848

B. 1.02

C. 1.57

D. 0.6344

**Answer: A**



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44.  $A + 2B \rightarrow C$ , the rate equation for this reaction is given as

$$\text{Rate} = k[A] [B].$$

If the concentration of A is kept the same but that of B is doubled what will happen to the rate itself?

- A. Double
- B. Halved
- C. The same
- D. Quadrupled

**Answer: A**



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45. What mass of  $N_2H_4$  can be oxidised to  $N_2$  by  $24.0gK_2CrO_4$ , which is reduced to  $Cr(OH)_4^-$  ?

A. 9.97 g

B. 2.97 g

C. 3.97 g

D. 4.97 g

**Answer: B**



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