



# CHEMISTRY

## BOOKS - NTA MOCK TESTS

### NTA TPC JEE MAIN TEST 106

#### Chemistry

1. In which at least one  $\sigma$  bond of  $np(\sigma_{np})$  orbital is present :-

A.  $B_2$

B.  $O_2$

C.  $C_2$

D.  $Li_2$

**Answer: B**



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2. If four elements A, B, C and D have first ionization enthalpies as 786KJ/mol, 737KJ/mol, 577KJ/mol and 1012KJ/mol respectively. Then

the elements A, B, C and D respectively might be:

A. Mg, Si, P & Al

B. Si, Mg, Al & P

C. P, Si, Mg & Al

D. Si, P, Al & Mg

**Answer: B**



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3. In the complex ion  $[Fe(EDTA)]^{\oplus}$  the coordination number and oxidation state of central metal ion is:

A. CN = 6, ON = +3

B. CN = 1, ON = -1

C. CN = 4, ON = +2

D. CN = 3, ON = +3

**Answer: A**



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4. On passing  $CO_2$  gas, the yellow colour solution of  $Na_2CrO_4$  changes to red changes to orange-red because of the formation of :-

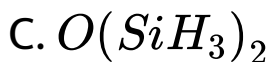
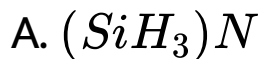


**Answer: C**



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5. Back bonding is present in:



D. All of these

**Answer: D**



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6. Mercury is transported in the containers made of-

A. Ag

B. Pb

C. Al

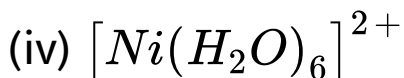
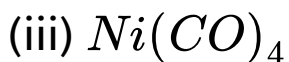
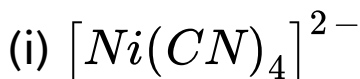
D. Fe

**Answer: D**



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7. There are four complexes of Ni. Select the complex(es) which will be attracted by magnetic field :



A. I only

B. IV only

C. II, III and IV

D. II and IV



**Answer: D**



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**8.** In  $Na_2O_2$ , the oxidation states respectively for Na and oxygen may be:

A. 1, - 1

B. + 2, - 2

C. + 1, - 2

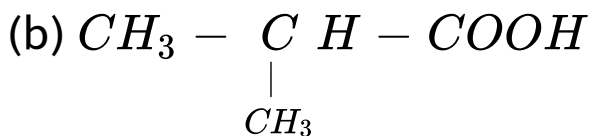
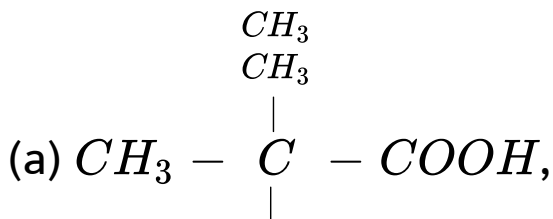
D. None of these

**Answer: A**



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9. RCOOH reactivity order for esterification reaction when ROH is same will be :-



(c)  $\text{CH}_3\text{COOH}$ , (d)  $\text{HCOOH}$

A.  $a > b > c > d$

B.  $d > c > b > a$

C.  $a > d > c > b$

D.  $a > b > c > a$

**Answer: B**

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**10.** The product obtained from the reaction of aniline with  $Br_2/H_2O$  is treated with an aqueous solution of sodium nitrite, in presence of dilute HCL In the compound

formed, the chloride ion is converted into tetrafluoroborate ion and the formed compound is subsequently dried. What is the end product of these sequence of reactions ?

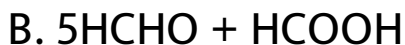
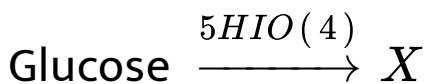
- A. 1,3,5-tribromobenzene
- B. p-bromofluorobenzene
- C. p-bromoaniline
- D. 2,4, 6-tribromofluorobenzene

**Answer: D**



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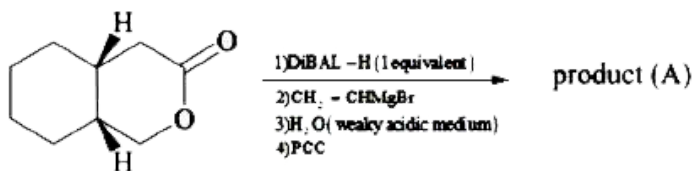
11. Identify the product X in the following reaction.



**Answer: A**

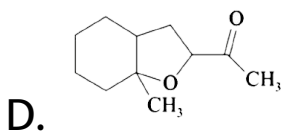
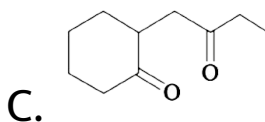
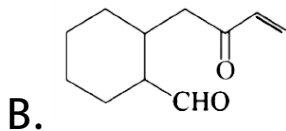
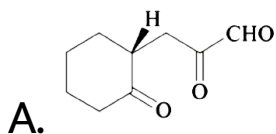


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12.

Which is the correct structure of A ?



**Answer: B**



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**13.** Select the compound having maximum chlorine atoms.

A. Chloral

B. iodoform

C. DDT

D. Carbon tetrachloride

**Answer: C**



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**14.** Method by which acetaldehyde can not be prepared is:

A. Reduction of Ethanenitrile with

*$SnCl_2HCl$*  followed by  *$H_2O$*

B. Oxidation of Ethanol with P.C.C.

C. Alkaline hydrolysis of ethylidene chloride

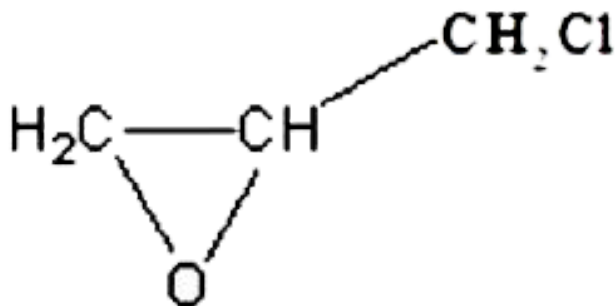


## D. acidic hydrolysis of acetamide

**Answer: D**

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**15.** Which of the following represents correct IUPAC name of the compound ?



A. 1-Chloro-2, 3-epoxypropane

B. 3-Chloro-1, 2-epoxypropane

C. 1-Chloroethoxymethane

D. None of these

**Answer: B**



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16.  $S_2O_8^{2-}$  ions produce on electrolysis of solution of  $HSO_4^-$ . Assuming 75% current efficiency, what current should be employed to

achieve a production rate of 1 mol of  $S_2O_8^-$   
per hour ?

A. 71.50 A

B. 35.70 A

C. 142.96 A

D. 285.93 A

**Answer: A**



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17. Calculate the approximate enthalpy of vapourization of toluene if the boiling point elevation constant for toluene is  $3.32\text{K kg mol}^{-1}$  and the normal boiling point of toluene is  $110.7\text{ }^\circ\text{C}$ .

A.  $17.0\text{kJ mol}^{-1}$

B.  $34.0\text{kJ mol}^{-1}$

C.  $51.0\text{kJ mol}^{-1}$

D.  $68.0\text{kJ mol}^{-1}$

**Answer: B**



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**18.** The number of water molecules is maximum in:

- A. 18 gram of water
- B. 18 moles of water
- C. 18 molecules of water
- D. 1.8 gram of water

**Answer: B**



19.  $K_a$  for acid HA and HB are  $2.1 \times 10^{-4}$  and  $1.1 \times 10^{-5}$  respectively. The relative strength of acid if concentration is same:-

A. 19: 1

B. 2.3: 1

C. 1: 2.1

D. 4.37: 1

**Answer: D**



20. Calculate the temperature at which the given reaction will become spontaneous, if the values of  $\Delta H$  and  $\Delta S$  for the reaction,

$C_{\text{graphite}} + CO_2(g) \rightarrow 2CO(g)$  are 170 kJ and  $170\text{JK}^{-1}$ , respectively.

A. 910 K

B. 1110 K

C. 510 K

D. 710 K

**Answer: B**



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21. As per molecular orbital theory, bond order of  $Li_2$  is  $x$  and that of  $Li_2^-$  is  $y$ . The value of  $(x - y)$  is:



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22. The outer electronic configuration of group 13 is given as  $ns^2np^x$ , where, value of 'X' is:



is:



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**23.** How many of the following reagents can be used to distinguish acetophenone from benzophenone ?

2, 4 — dinitrophenylhydrazine, Aqueous  $NaHSO_3$ , Bendor's reagent,  $I_2 / NaOH$



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24. In combustion of butane, the number of moles of  $CO_2$  formed per mole of butane is.....



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25. The total number of optically inactive chemical compounds among the following are:

4-Hydroxyheptane, 2-iodobutane, 2,2 -  
dibromopentane, 2 chloropropanoic acid,  
ethylidene chloride, ethylene dichloride, 2,3-

dichlorobutane, 3-bromobut-1-ene, butan-1-ol  
and propan-2-ol.



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26. The solubility of  $AgCl_s$  with solubility product  $1.6 \times 10^{-10}$  in 0.1 M NaCl Solution is  $x \times 10^{-9}$  M. The value of x is \_\_\_\_\_



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27. 5 g of solid adsorbent is dropped in a container of  $1.5\text{LN}_2$  gas at 1 atm and 300K. The pressure of  $\text{N}_2$  is reduced to 20%. The mass of nitrogen (in g) adsorbed per gram of adsorbent is \_\_\_\_\_. [Given:  $R = 0.08\text{L. atm K}^{-1}\text{mol}^{-1}$ ]

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28. An ionic solid has NaCl structure. The coordination number of cation is \_\_\_\_\_





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29. The total number of spherical nodes in  $1s$  orbital is \_\_\_\_.



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30. The speed of the chemical reaction doubles every  $10^{\circ}\text{C}$  rise of temperature. If the temperature is raised by  $40^{\circ}\text{C}$ , the speed of the reaction increases by the factor of \_\_\_\_\_



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