# CHEMISTRY

## BOOKS - NTA MOCK TESTS

## NTA TPC JEE MAIN TEST 55

### Chemistry Single Choice

**1.** Among the following, mention the correct hybridization of an oxygen atom in furan.

A. $sp^3$

B. sp

C. $sp^2$

D. $sp^3d$

**Answer: C**

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**2.** As the number of orbit increase from the nucleus, the difference between the adjacent energy levels :

A. increases

B. remains constant

C. decreases

D. none of these

**Answer: C**

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**3.** In the cyanide extraction process of silver from argentite ore, the oxdising and reducing agents used are :

A. $O_2$ and CO respectively

B. $O_2$ and Zn dust respectively

C. $HNO_3$ and Zn dust respectively

D. $HNO_3$ and CO respectively

**Answer: B**

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**4.** Water shows a maximum density at

A. $10^{\circ} C$

B. $4^{\circ} C$

C. $0^{\circ} C$

D. $1^{\circ} C$

**Answer: B**

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**5.** $Ce^{+4}$ acts as a :

A. Oxidising agent

B. Reducing agent

C. 1 & 2 both

D. Bleaching agent

**Answer: A**

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**6.** The pairs of complexes having different molar conductivities in their aqueous solutions but are isomeric with each other is:

A. $PtCl_2(NH_3)_4]Br_2$ and $[PtBr_2(NH_3)_4]Cl_2$

B.

$[CoCl_2(NH_3)_4]NO_2$ and $[CoCl(NO_2)(NH_3)_4]Cl$

C.

$[Co(NO_2)(NH_3)_5]Cl_2$ and $[Co(ONO)(NH_3)_5]Cl_2$

D.

$[CoBr_2(NH_3)_4]SO_4$ and $[Co(SO_4)(NH_3)_4]Br_2$

**Answer: D**

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**7.** Which order are correct?

A. Thermal stability :

$$BeSO_4 > MgSO_4 > CaSO_4 > SrSO_4 > BaSO_4$$

B. Basic nature:

$$ZnO > BeO > MgO > CaO$$

C. Solubility in water :

$$LiOH > NaOH > KOH > RbOH > CsOH$$

D. Melting point :

$$NaCl > KCl > RbCl > CsCl > LiCl$$

**Answer: D**

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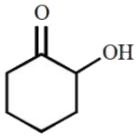
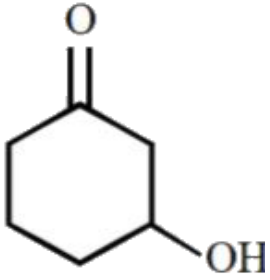
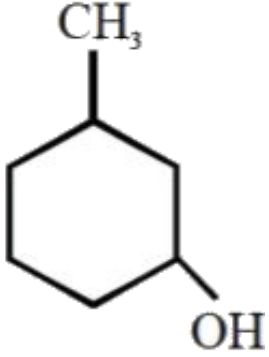
**8.** The rate of dehydration will be maximum in the case of:

A. 


B. 


C. 

D. 


**Answer: D**

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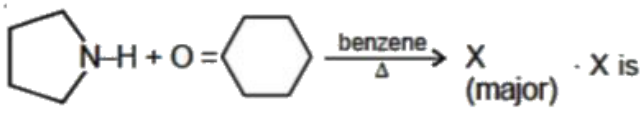
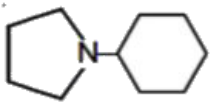
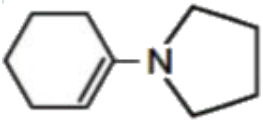
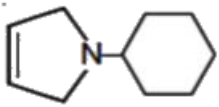
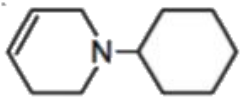
**9.** What is the major product 'X' in the following reaction?



A. 

B. 

C. 

D. 

**Answer: B**

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**10.** 'Maltose' is made up of ?

A. $\alpha - D - \text{glucose} + \alpha - D - \text{glucose}$

B. $\alpha - D - \text{glucose} + \beta - D - \text{glucose}$

C. $\alpha - D - \text{glucose} + \beta - D - \text{Fructose}$

D. $\alpha - D - \text{glucose} + \alpha - D - \text{galactose}$

**Answer: A**

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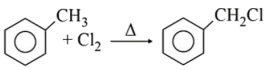
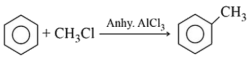
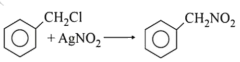
**11.** Which of the following is a free radical substitution reaction ?

A. 


B. 


C. 

D. $CH_3 - CHO + HCN \rightarrow CH_3 - CH(OH)CN$

**Answer: A**

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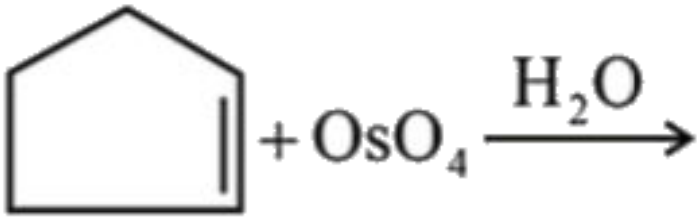
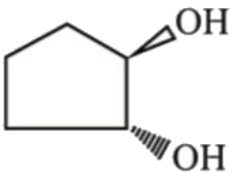
12.

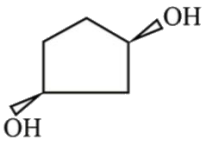


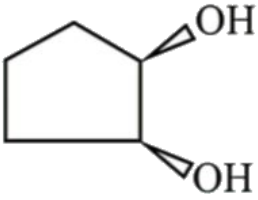

Select major product (s) : -

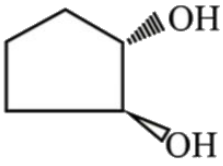
A.




B.



C. 


D. 


**Answer: C**

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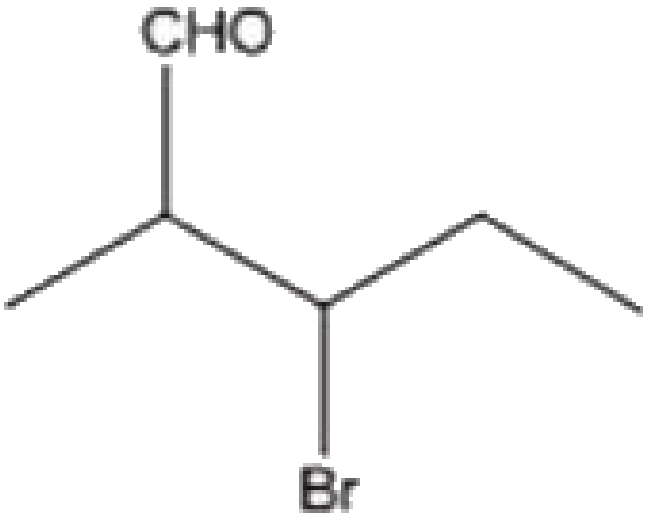
**13.** What is the IUPAC name of the compound given below.




A. 2-methyl-3-bromohexanal

B. 3-bromo-2-methylbutanal

C. 2-bromo-3-bromobutanal

D. 3-bromo-2-methylpentanal

**Answer: D**

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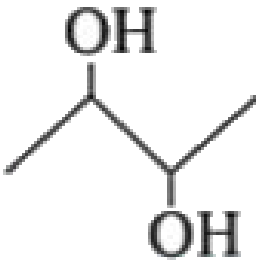
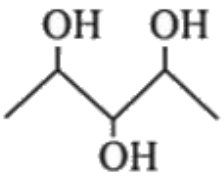
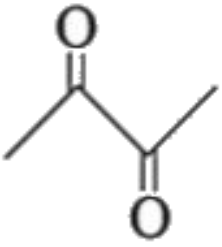
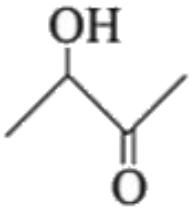
**14.** Which of the following give only aldehyde on oxidation with $HIO_4$?

A. 


B. 


C. 

D. 


**Answer: A**

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**15.** Chloroxylenol act as?

A. Antiseptic

B. Antipyretic

C. Analgesic

D. Transquilizer

**Answer: A**

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**16.** Given:

$E_{Ag^+/Ag} = +0.80V, E^\circ_{Co^{2+}/Co} = -0.28V$

$E^\circ_{Cu^{2+}/Cu} = +0.34V, E^\circ_{Zn^{2+}/Zn} = -0.76V$

Which metal will corrode fastest?

A. Ag

B. Cu

C. Co

D. Zn

**Answer: D**

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**17.** $MnO_4^{2-}$ (1 mole) in neutral aqueous medium disproportionates to :

A. 2/3 mole $MnO_4^-$ and 1/3 mole $MnO_2$

B. 1/3 mole $MnO_4^-$ and 2/3 mole $MnO_2$

C. 1/3 mole $Mn_2O_7$ and 2/3 mole $MnO_2$

D. 2/3 mole $Mn_2O_7$ and 1/3 mole $MnO_2$

**Answer: A**

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**18.** Which of the following exhibit ferromagnetism :

A. $CrO_2$

B. $MnO$

C. $Fe_3O_4$

D. $MgFe_2O_4$

**Answer: A**

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**19.** Which statement is correct for complex reactions?

A. it is a single step process

B. Net rate of formation of a reaction intermediate = 0

C. It is also called elementary reaction

D. overall reaction provides information about the mechanism of reaction

**Answer: B**

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**20.** The heat of neutralisation of HCl by NaOH is - 55.9 kJ / mol. if the heat of neutralisation of HCN by NaOH is

-12.1 kJ / mol. The energy of dissociation of HCN is :

A. $-43.8kJ$

B. $43.8kJ$

C. 68 kJ

D. $-68$ kJ

**Answer: B**

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Chemistry Subjective Numerical

**1.** The count of ligand(s) among the following which are classified as ambidentate ligands:

1. CO

2. CN

3. F

4. $OH^-$

5. SCN

6. $NO_2^-$

7. $CH_3NH_2$

8. $H_2N(CH_2)_2NH_2$

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**2.** Total number of planar molecule in which d orbital(s) is/are use in their bonding.

$SO_2, SO_3, XeF_2, XeF_4, XeF_6, PH_3, ICI_4^{\ominus}, PCl_5, I_3^{\ominus}$

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**3.** The compounds which is/are gas(es) at 298 K among the following is/are:

$SO_2, SO_3, O_3, SeO_2, TeO_2$

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**4.** The number of structural isomers of $C_7H_9N$ that satisfies both the below given conditions is .....

i. Should have a benzene ring

ii. Should have an amine group

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**5.** How many alcohols from the following set will yield geometric isomers on dehydration? Propan-2-ol, 2-methylpropan-1-ol, pentan-2-ol, ethanol, propan -1-ol, 2-methylpropan-2-ol, butan-1-ol, butan–2– ol, hexan-3-ol

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**6.** Calculate pH of solution after calculating $A^{2-}$ concentration in 0.1 $MH_2$ A solution, if $K_1$ and $K_2$ for dissociation of $H_2A$ is $4 \times 10^{-3}$ and $1 \times 10^{-5}$.

(Fill your answer upto 2 decimal places)

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**7.** Find out the molecular weight of $C_6H_5COOH$ in the case where, 1.22 g $C_6H_5COOH$ is added into the solvent benzene and interpret the result. In 100 g benzene, $\Delta T_b$) = 0.13 and $k_b = 2.6$ Kg/mol.

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**8.** Find the weight of copper required to produce 20 g of copper sulphate pentahydrate. As the law of constant proportions is true and given that copper sulphate pentahydrate contains 25.45% of copper and 36.08% of water.

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**9.** The volume of an ideal gas is 30 $cm^3$ at $27^\circ C$. At what temperature (in celsius), will the volume of the gas become 35 $cm^3$ ?

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**10.** Report your answer as $\frac{x}{4}$. If x is the number of electrons in chromium which have orbital angular momentum equal to $\frac{h}{\sqrt{2}\pi}$.

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