doubtnut
India's Number 1 Education App

# CHEMISTRY

# BOOKS - NTA MOCK TESTS

# NTA TPC JEE MAIN TEST 62

## Chemistry

**1.** Among the following, which expression correctly represents linear combination of atomic orbitals ?

A. $\Psi_{AB} = \psi_A \times \psi_B$

B. $\Psi_{AB} = \frac{\psi_A}{\psi_B}$

C. $\Psi_{AB} = \psi_A - \psi_B$

D. $\Psi_{AB} = \psi_A^2 \times \psi_B^2$

**Answer: C**

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**2.** The incorrect statement among the following is -

A. First ionisation energy of Mg is larger than Al.

B. Second ionisation energy of Mg is smaller than Al.

C. Second ionisation energy of Mg is larger than Al.

D. Third ionisation energy of Mg is larger than Al.

**Answer: C**

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**3.** Extraction of gold and silver involves leaching the metal with CN - ion The metal is recovered by ....

A. displacement of metal by some other metal from the complex ion

B. roasting of metal complex

C. calcination followed by roasting

D. thermal decomposition of metal complex

**Answer: A**

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**4.** Why is $D_2O$ preferred over $H_2O$ as a moderator in nuclear reactors ?

A. $D_2O$ slows down the speed of neutrons more effectively than $H_2O$

B. $D_2O$ has high specific heat.

C. $D_2O$ is cheaper.

D. None.

**Answer: A**

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**5.** $Cr_2O_7^{2-} \xrightarrow{[H^+]} CrO_4^{2-} \xrightarrow{[H^+]} Cr_2O_7^{2-}$

Values of $[H^+]$ would be respectively :-

A. $10^{-4}, 10^{-5}$

B. $10^{-4}, 10^{-8}$

C. $10^{-8}, 10^{-4}$

D. $10^{-8}, 10^{-9}$

**Answer: C**

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**6.** If $\Delta_0 < P$ , the correct electronic configuration for $d^4$ system will be :-

A. $t_{2g}^4 e_g^0$

B. $t_{2g}^3 e_g^1$

C. $t_{2g}^0 t_g^4$

D. $t_{2g}^2 e_g^2$

**Answer: B**

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**7.** Which of the following minerals is not an ore of aluminium ?

A. Bauxite

B. Gypsum

C. Cryolite

D. Corundum

**Answer: B**

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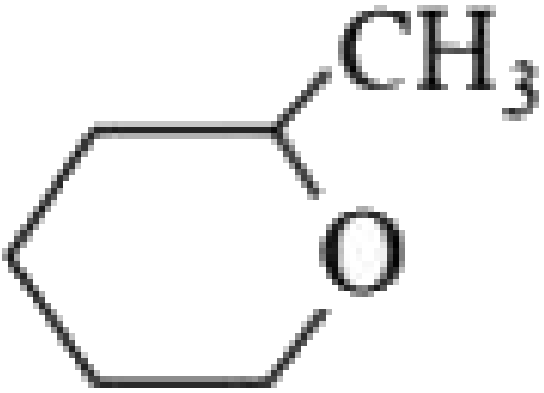
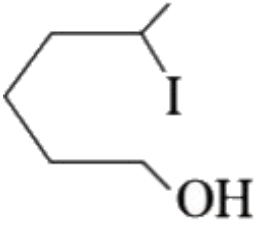
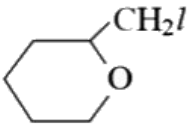
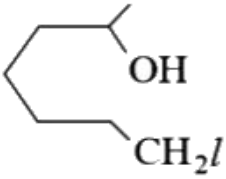
**8.** What is the major product of this reaction ?

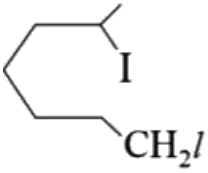



+ One equivalent of $HI \xrightarrow{\Delta}$

A. 


B. 


C. 


D. 


**Answer: A**

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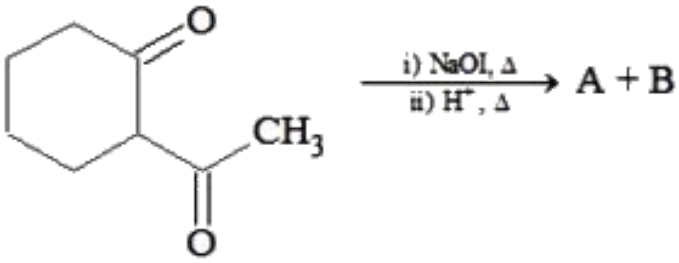
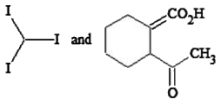
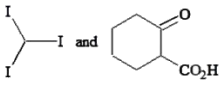
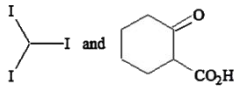
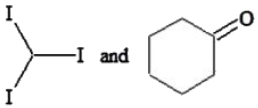
**9.** What are the end products A and B of the following sequence of reaction ?




A. 


B. 


C. 


D. 

**Answer: D**

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**10.** Which of the following reaction of glucose can be explained only by its cyclic structure :

A. Glucose forms pentaacetate with acetyl chloride

B. Glucose reacts with hydroxyl amine to form an oxime

C. Pentacetate of glucose does not react with hydroxyl amine

D. Glucose is oxidised by $Br_2$ water to gluconic acid

**Answer: C**

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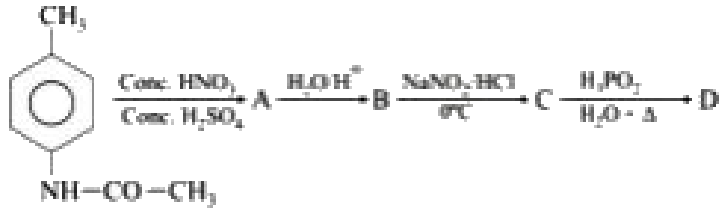
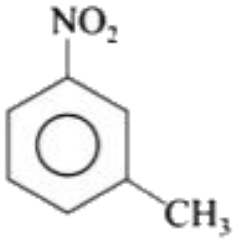
**11.** 


Final product D is-

A.

B.


C.

D. 


**Answer: D**

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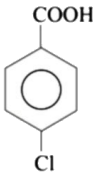
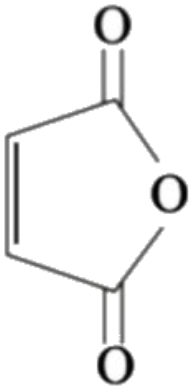
**12.** Acetylene $\xrightarrow[\text{Fe-tube}]{\text{Red hot}} A \xrightarrow[AlCl_3]{CH_3Cl} B \xrightarrow[\Delta]{KMnO_4} C$

Product 'C' is :

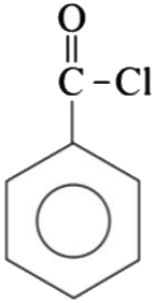
A. 

B.

C.




D.




**Answer: B**

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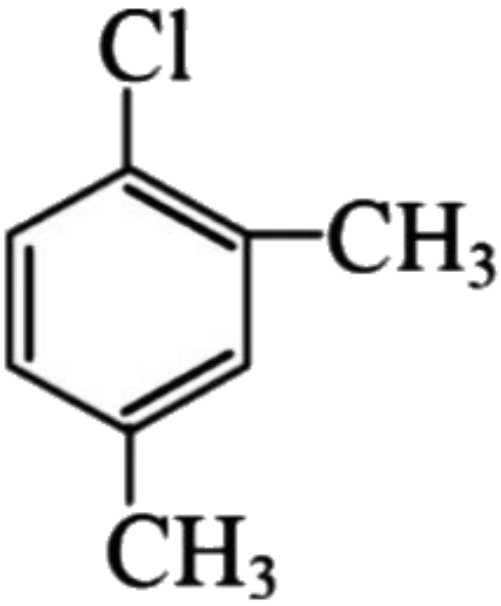
**13.** What will be the IUPAC name of the given compound ?




is:

A. 4 — chloro — meta — xylene

B. 1 — chloro — 2, 4 — dimethyl benzene

C. 2 — chloro — 5 — methyl toluene

D. 4 — chloro — 3 — methyl toluene

**Answer: B**

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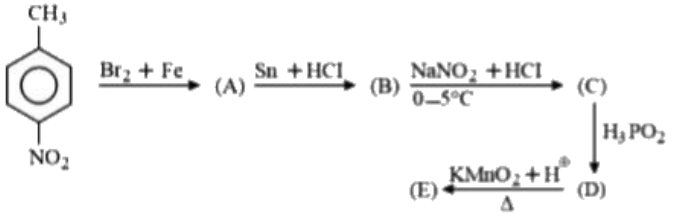
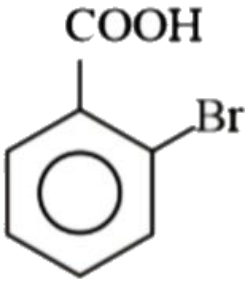



**14.**

Waht is 'E' ?

A.

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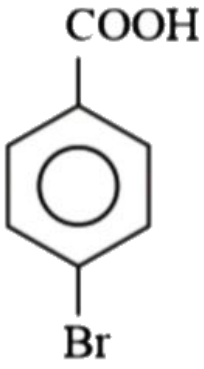
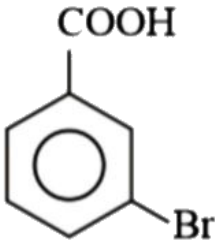
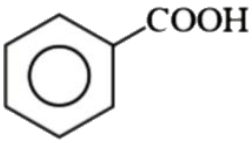


C. 


D. 


**Answer: A**

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**15.** Which of the following is the structure of Alizarine dye obtained from the root of the madder plant is an Anthraquinone derivative ?

A. 1,2- dihydroxy anthraquinone

B. 2, 3- dihydroxy anthraquinone

C. 1, 4- dihydroxy anthraquinone.

D. 1 - hydroxyl anthraquinone

**Answer: A**

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**16.** The molar conductivity of acetic acid at infinite dilution is $390.7 Scm^2 \text{mol}^{-1}$. Conductivity of 0.1 M acetic acid solution is

$5.2 Scm^2 mol^{-1}$, find out degree of dissociation of acetic acid :-

A. 0.133

B. 0.0133

C. 0.139

D. 0.001

**Answer: B**

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**17.** AB crystal has CsCl type structure. If edge length of unit cell is 100 pm then nearest distance between cation and anion is :-

A. 50 pm

B. 100 pm

C. 173.2 pm

D. 86.6 pm

**Answer: D**

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**18.** If a mixture of $Na_2CO_3$ and $NaHCO_3$ weighs 10 g which on heating produces 2.2 g of $CO_2$. Then Calculate the mass percentage of $NaHCO_3$ in mixture ?

A. 0.54

B. 0.84

C. 0.68

D. 0.42

**Answer: B**

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**19.** In vander waal's equation of state of the gas law, the constant 'b' is a measure of:

A. intermolecular collisions per unit volume

B. intermolecular attraction

C. intermolecular repulsions

D. volume occupied by the molecules

**Answer: D**

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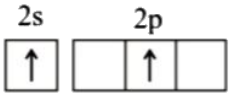
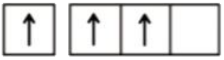
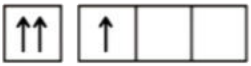
**20.** Which among the following is correct of 5B in normal state ?

A. 


Against Hund's rule

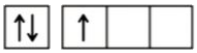
B. 

Against aufbau principle as well as Hund's rule

C. 

Violation of Pauli's exclusion principle

and not Hund's rule.

D. 

Violation of Pauli's exclusion principle and not Hund's rule.

**Answer: C**

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**21.** The number of lone pair of electrons in a molecule of ethylene glycol is___

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**22.** In dlthionous acid, the overall oxidation state of sulphur is___.

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**23.** Reaction of aniline with acetic anhydride in presence of pyridine yields acetic acid and product 'X'.

What is the total number of groups from the

following, present in the compound 'X' ?

| | | |
|---|---|---|
| $-NO_2$ | $-NH-CO-$ | $-NH_2$ |
| $-COOH$ | $-CH_3$ | $-N=N-$ |
| $-CH_2CH_3$ | $-C_6H_5$ | $-OH$ |

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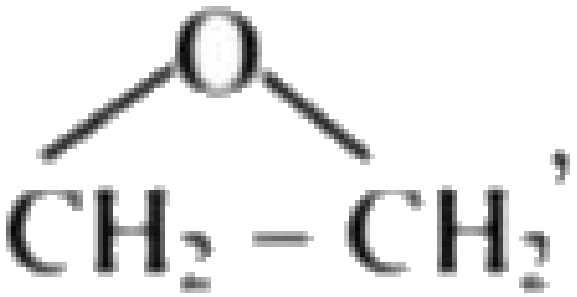
**24.** The total number of compounds, which yield $1^o$ alcohols on reaction with Grignard reagent from the following is_____.

$CH_3COCH_3, CH_2O, PhCOCH_3, CH_3COC_2H_5$

$CH_3CHO$



,

PhCOPH.

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**25.** A solution has pH = 5. If the $[OH^-]$ for the solution is $10^{-y}$ M. What is the value of y ?

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**26.** 1 gram of commercial $AgNO_3$ is made into solution of 50 mL and KI is added in excess. The silver iodide thus precipitated is filtered off. Excess of KI in the filtrate is titrated with (M/10) $KIO_3$ solution in presence of 6M HCl till all I- ions are converted into IC1. It requires 50 mL of (M/10) $KIO_3$ solution. 20 mL of the same stock solution of KI requires 30 mL of (M/10) $KIO_3$ under similar conditions. Find the purity of $AgNO_3$ sample.

Reaction:

$$KIO_3 + 2Kl + 6HCl3ICl + 3KCl + 3H_2O$$

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**27.** How many of the following solutions will behave as ideal solution, if the following substances are mixed together?

i. n — Hexane + n — heptane

ii. Bromoethane + chloroethane

iii. Acetone + ethanol

iv. Acetone + carbon disulphide

v. Acetone + chloroform

vi. Benzene + toluene

vii. Phenol + aniline

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**28.** The time taken for half of the reaction to complete is 100 seconds for a first-order reaction. The time taken for 99% reaction to occur will be

(Approximate the answer to closest decimal)

Given: In 2 = 0.693

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