



CHEMISTRY

BOOKS - NTA MOCK TESTS

NTA JEE MOCK TEST 42

Chemistry

1. The numbers of radial nodes of $3s$ and $2p$ orbitals are respectively:

A. 0, 2

B. 2, 0

C. 2, 1

D. 1, 2

Answer: B



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2. One mole of N_2H_4 loses ten moles of electrons to form a new compound A . Assuming that all the nitrogen appears in the

new compound, what is the oxidation state of nitrogen in A ? (There is no change in the oxidation state of hydrogen.)

A. +2

B. -2

C. +3

D. +4

Answer: C



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3. Positive deviation from ideal behaviour takes place because of

A. molecular interaction between atoms

$$\text{and } \frac{PV}{nR} > 1$$

B. molecular interaction between atoms and

$$\frac{PV}{nRT} < 1$$

C. finite size of atoms and $\frac{PV}{nRT} > 1$

D. finite size of atoms and $\frac{PV}{nRT} < 1$

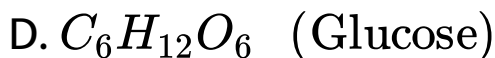
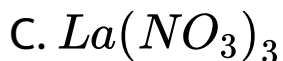
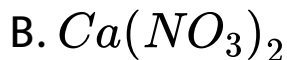
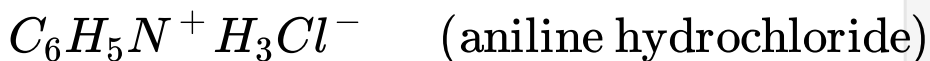
Answer: C



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4. The freezing point of equimolal aqueous solution will be highest for :

A.



Answer: D



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5. The rate constant, the activation energy and the Arrhenius parameter of a chemical reactions at $25^{\circ}C$ are $3.0 \times 10^{-4} s^{-1}$, $104.4 \text{ kJ mol}^{-1}$ and $6 \times 10^{14} s^{-1}$ respectively. The value of the rate constant as $T \rightarrow \infty$ is

A. $2.0 \times 10^{18} s^{-1}$

B. $6.0 \times 10^{14} s^{-1}$

C. infinity

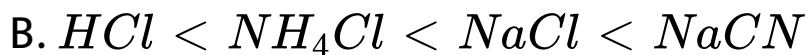
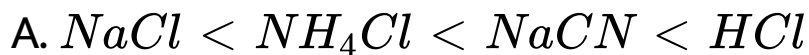
$$D. 3.6 \times 10^{30} s^{-1}$$

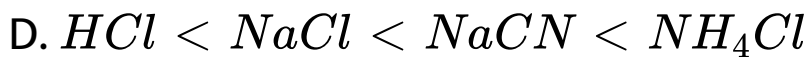
Answer: B



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6. The pH of 0.1 M solution of the following salts increases in the order





Answer: B



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7. Chlorination of toluene in the presence of light and heat followed by treatment with aqueous NaOH gives

A. o - Cresol

B. p - Cresol

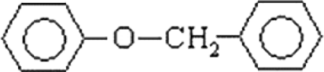
C. 2, 4- Dihydroxytoluene

D. Benzoic acid



Answer: D



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8. The ether The ether

The ether  when treated with

HI produces

(1)  (2) 

(3)  (4) 

A. 1, 3

B. 1, 2

C. 1, 4

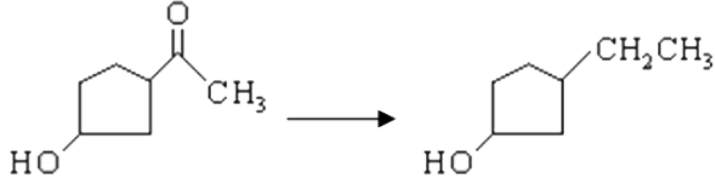
D. all are formed

Answer: C



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9. The appropriate reagent for the transformation



A. $Zn(Hg), HCl$

B. NH_2NH_2, OH^-

C. H_2 / Ni

D. $NaBH_4$

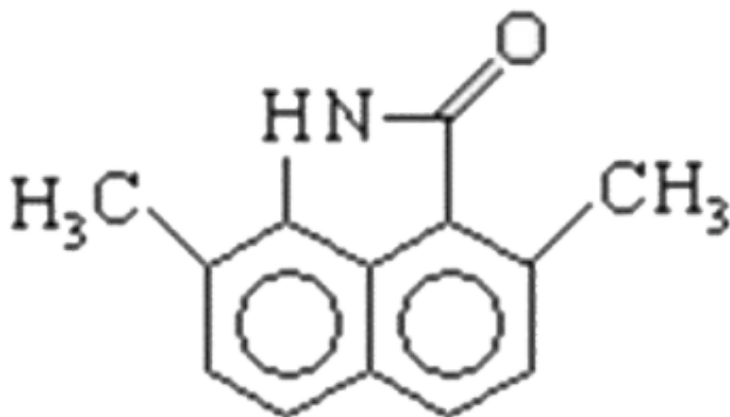
Answer: B



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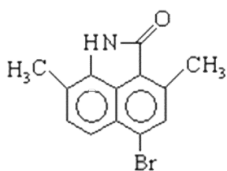
10. The major product obtained when Br_2 / Fe

is treated with

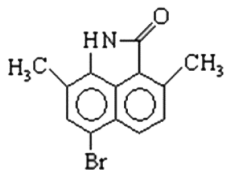


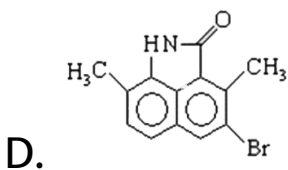
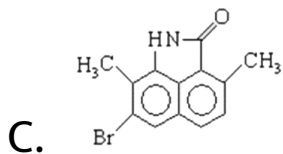
is

A.



B.





Answer: B

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11. Which of the following compounds is expected to be coloured?

A. CuF_2

B. $CuCl$

C. Ag_2SO_4

D. MgF_2

Answer: A



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12. When zeolite, which is hydrated sodium aluminium silicate, is treated with hard water the sodium ions are exchanged with

A. H^+ ions

B. Ca^{2+} ions

C. SO_4^{2-} ions

D. Mg^+ ions

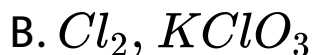
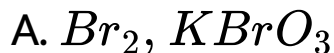
Answer: A



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13. A greenish yellow gas reacts with an alkali metal hydroxide to form a halate which can be

used in fireworks and safety matches. The gas and the halate are

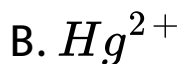


Answer: B



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14. A solution of a metal ion when treated with KI gives a red precipitate which dissolves in excess KI to give a colourless solution. Moreover, the solution of metal ion on treatment with a solution of cobalt (II) thiocyanate gives rise to a deep blue crystalline precipitate. The metal ion is

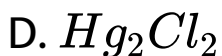
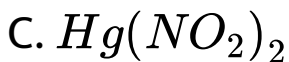
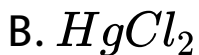
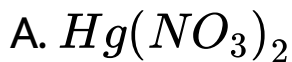


Answer: B



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15. Mercury on heating with aqua regia gives



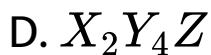
Answer: B



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16. A solid is formed and it has three types of atoms X, Y and Z, X forms a fcc lattice with Y atoms occupying all tetrahedral voids and Z atoms occupying half of octahedral voids. The formula of solid is :-





Answer: D



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The equilibrium pressure at $25^\circ C$ is 0.660 atm

. What is K_p for the reaction ?

A. 0.109 (atm)^2

B. 0.218 (atm)^2

C. 1.89 (atm)^2

D. 2.18 (atm)^2

Answer: A



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18. In the metallurgy of iron, when limestone is added to the blast furnace, the calcium ions end up in

A. Slag

B. Gangue

C. Metallic Ca

D. $CaCO_3$

Answer: A



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19. Identify the pollutant gases largely responsible for the discoloured and lustreless nature of marble of the Taj Mahal.

A. SO_2 and NO_2

B. SO_2 and O_3

C. CO_2 and NO_2

D. O_3 and CO_2

Answer: A



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20. What is the IUPAC nomenclature of vanillin used as a flavouring agent in ice - cream?

A. 3 - Chloro -4- methoxy benzoic acid

B. 4, 6 - Dimethoxy benzaldehyde

C. 3, 4- Dihydroxy benzaldehyde

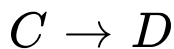
D. 4 - Hydroxy -3- methoxy benzaldehyde

Answer: D



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21. The conversion A to B is carried out by the



following path : \uparrow \downarrow Given :



$$\Delta S_{(A \rightarrow C)} = 50 \text{ e.u.},$$

$$\Delta S_{(C \rightarrow D)} = 30 \text{ e.u.}, \Delta S_{(B \rightarrow D)} = 20 \text{ e.u.}$$

where e.u. is entropy unit then $\Delta S_{(A \rightarrow B)}$ is



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22. The number of isomers for the compound with molecular formula $C_2BrClFI$ is



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23. $I_2(s) | I^-(0.1M)$ half cell is connected to a $H^+(aq) | H_2(1 \text{ bar}) | Pt$ half cell and e.m.f. is found to be 0.7714 V. If $E_{I_2|I^-}^\circ = 0.535 \text{ V}$, find the pH of $H^+ | H_2$ half cell.



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24. The number of sp hybridized atoms in pseudohalogen cyanogen is/are



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25. Number of the following statements is/are correct?

(A) Greater the stability constant of a complex ion, greater is its stability

(B) Greater the oxidation state of the central metal ion, greater is the stability of the complex

(C) CO stabilises complex because of its synergic Bonding.

(D) Chelate complexes have low stability constants



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