CHEMISTRY

BOOKS - NTA MOCK TESTS

NTA TPC JEE MAIN TEST 111

Chemistry

1. In which of the following 2 types of bond lengths are present:

A. XeF_2

B. CH_4

C. SF_6

D. SF_4

Answer: D

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2. Consider the given metals:

Na, Mg, Al and Si

Predict the correct order of first ionization $(I.E_1)$ among them.

A. $Si < Mg < Al < Na$

B. $Si < Al < Mg < Na$

C. $Na < Al < Mg < Si$

D. $Na < Mg < Al < Si$

Answer: C

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3. The isomer(s) of $\left[Co(NH_3)_4Cl_2\right]$ that has/have a Cl - Co - Cl angle of 90°. is/are :

A. meridional and trans

B. cis and trans

C. trans only

D. cis only

Answer: D

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4. A metal oxide is found to be yellow in colour when hot and white in colour when it is cold. Then, the metal oxide will be:

A. CuO

B. ZnO

C. PbO

D. All the above.

Answer: B

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5. The most powerful reducing agent is:

A. H_3PO_3

B. H_3PO_4

C. $H_4P_2O_7$

D. $H_4P_2O_6$

Answer: A

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6. SO_2 and CO_2 gas can be differentiated by

A. MnO_4^-

B. $Cr_2O_7^{2-}$

C. lime water

D. Both A & B

Answer: D

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7. Possible isomers of complex

$\left[Pb(NH_3)_2(NO_2)_2\right]$?

A. 2

B. 6

C. 4

D. 3

Answer: B

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8. $K[BrICl] \xrightarrow{\Delta} (X) + (Y)$. Identify X and Y.

A. $(X) = KBr(Y) = ICl$

B. $(X) \equiv KI(Y) \equiv BrCl$

C. $(X) = KCl(Y) \equiv IBr$

D. $Y \equiv IBr$

Answer: C

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9. Predict the major or stable product in the given sequence of reaction

$$\underset{[C]}{C_2H_5NH_2} \xrightarrow{HNO_2} [A] \xrightarrow{COCl_2} [B] \xrightarrow{NH_3}$$

A. Ethyl cyanide

B. Methylamine

C. Ethylamine

D. Acetamide

Answer: C

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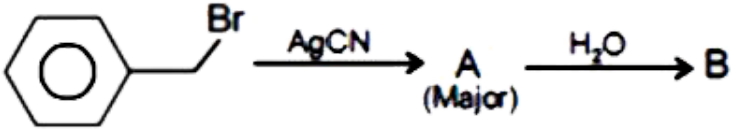
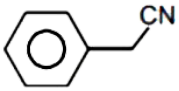
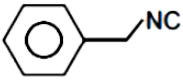
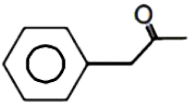
10. 

What is the product B in the above reaction sequence?

A. A = 

B. A = 

C. A = 

D. B = 

Answer: B

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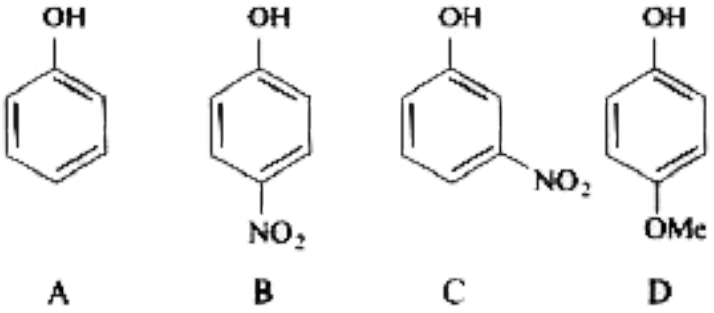
11. What is the correct Increasing order of the pKa values of the following compounds?



A. $B < C < A < D$

B. $D < A < C < B$

C. $B < C < D < A$

D. $C < B < A < D$

Answer: A

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12. Calculate the emf of the following three galvanic cells:

I. $Zn / Zn^{2+}(1m) \mid \left|Cu^{2+}(1m)\right|Cu$

II. $Zn / Zn^{2+}(0.1) \mid \left|Cu^{2+}(1m)\right|Cu$

III. $Zn / Zn^{2+}(1m) \mid \left|Cu^{2+}(0.1m)\right|Cu$

and their emf are represented by

E_1, E_2 and E_3 respectively .Which of the following emf order is true?

A. $E_1 > E_2 > E_3$

B. $E_3 > E_2 > E_1$

C. $E_3 > E_1 > E_2$

D. $E_2 > E_1 > E_3$

Answer: D

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13. Formaldehyde associates in $C_6H_{12}O_6$ in aqueous solution

$CHCHO \Leftrightarrow H_6H_{12}O_6$

If the observed (mean) molar mass of HCHO and $C_6H_{12}O_6$ isl50, then determine the degree of association (polymerization) for the reaction in aqueous solution.

A. 0.50

B. 0.833

C. 0.90

D. 0.96

Answer: D

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14. K_{sp} of AgCl at $18^{\circ}C$ is 1.8×10^{-10}. If Ag^{+} of solution is 4×10^{-3} mollitre, the C^{-} that must exceed before AgCl is precipated would be :

A. 4.5×10^{-8} mol/litre

B. 7.2×10^{-13} mol/litre

C. 4.0×10^{-3} mol/litre

D. 4.5×10^{-7} mol/litre

Answer: B

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15. Which of the following is least likely to behave as Lewis base?

A. H_2O

B. NH_3

C. BF_3

D. OH^-

Answer: C

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16. Which of the following reactions represents the correct formation of the compound and gives enthalpy of formation?

A. $C(s) + 2H_2(g) \rightarrow CH_4(g)$

B. $C(g) + 4H(g) \rightarrow CH_4(g)$

C. $H_2(g) + CI_2(g) \rightarrow 2HCl(g)$

D. $N_2(g) + 6H(g) \rightarrow 2NH_3(g)$

Answer: A

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17. The number of sigma bonds in $CH_2(CN)_2$ is

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18. The number of double bonds in borazine is ------.

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19. The number of H-atoms in the product formed is

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20. In the following reaction, what will be the dipole moment of the product 'X'? But-2-yne

$$\xrightarrow{Na/liqNH_3} X$$

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21. Determine the number geometrical isomers possible for the following compound .

$$CH_3 - CH = \underset{\underset{Br}{|}}{C} - \underset{\underset{Br}{|}}{C} = CH - CH_3$$

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22. The minimum volume of water required to dissolve 2. 78 g lead (II) chloride to get a saturated solution

$\left(K_{sp}ofPbCl_2 = 3.2 \times 10^{-8}\right.$ mlar mass of $\left.PbCl_2 = 278gmol^{-1}\right)$ is -------- L.

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23. 100 mL of 1 M acetic acid is shaken with 4 g of charcoal. The concentration of acetic acid after adsorption is 0. 6 M. Calculate the mass

in grams of acetic acid adsorbed per gram of charcoal. [Molar mass of acetic acid is 60g/mol.]

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24. In a face centred cubic arrangement of A and B atoms in which 'A' atoms are the corners of the unit cell and 'B' atoms are at the face centers . One of the 'A' atom is missing from one corner in unit cell. The simplest formula of compound is A_xB_y. The value of x is

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25. When 4 f subshell is completely filled with electrons, the next electron will enter into a subshell for which, (n - l) value is equal to

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26. The mechanism for the reaction,

$2A + B \rightarrow C + D$ is given below:

i. $A + B \rightarrow E \rightarrow C$(slow)

ii. $A + E \rightarrow D$ (fast)

The overall order of the reaction is _____

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