RAVI MATHS TUITION & TEST PAPERS , WHATSAPP 8056206308

12th Standard

Chemistry

Date : 04-12-24

Multiple Choice Question 5 x 1 = 5

1) General electronic configuration of d - block elements is

(a) $(n - 1)\ d^{1-10}ns^{1-2}$ (b) ns^2np^{1-6} (c) $(n - 2)\ f^{0-14}(n - 1)^{1-2}ns^2$ (d) $(n-1)\ d^{1-5}ns^{1-2}$

2) Which of the following is not a transition element ?

(a) Zn (b) Ru (c) Ag (d) Pb

3) Which of the following ion is colourless in aqueous solution ?

(a) Fe^{2+} (b) Mn^{2+} (c) Ti^{3+} (d) Sc^{3+}

4) Which of the following compounds has the highest boiling point?

(a) $CH_3CH_2CH_2Cl$ (b) $CH_3CH_2CH_2CH_2Cl$ (c) $CH_3CH(CH_3)CH_2Cl$ (d) $(CH_3)_3CCl$

5) The organic chloro compound, which shows complete sterochemical inversion during a S_N2 reaction, is

(a) CH_3CI (b) $(C_2H_5)_2CHCI$ (c) $(CH_3)_3CCI$ (d) $(CH_3)_2CHCI$

2 Marks 4 x 2 = 8

6) The $E^{\ominus}\left(M^{2+}/M\right)$ value for copper is positive (+0.34 V). What is possibly the reason for this? (Hint: consider it's high $\Delta_a H^o$ and low $\Delta_{hyd} H^o$)

7) Which compound in each of the following pairs will react faste in S_N2 reaction with OH^-?

(a) CH_3Br or CH_3I

(b) $(CH_3)_3CCl$ or CH_3Cl

8) Explain giving a suitable reason for each of the following:

(i) Transition metals and their compounds are generally found to be good catalysts.

(ii) Metal-metal bonding is more frequent for the 4d and the 5d series transition metals than that for the 3d series.

9) Write the structure of the compound: 4-tert. Butyl-3-iodoheptane.

3 Marks 4 x 3 = 12

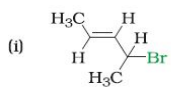
10) How would you account for the following?

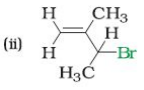
(a) Of the d^4 species, Cr^{2+} is strongly reducing while manganese (III) is strongly oxidising.

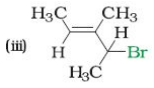
(b) Cobalt (II) is stable in aqueous solution but in the presence of complexing reagents, it is easily oxidised.

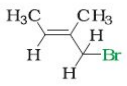
(c) The d^1 configuration is very unstable in ions.

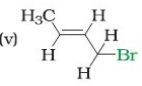
11) Write IUPAC names of the following:

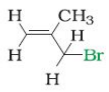
(i) 

(ii) 

(iii) 

(iv) 

(v) 

(vi) 

12) Explain why Cu(I) ion is not stable in aqueous solution ?

13) What happens when

(i) Chlorobenzene is treated with $CI_2/FeCI_3$,

(ii) Ethyl chloride is treated with $AgNO_2$,

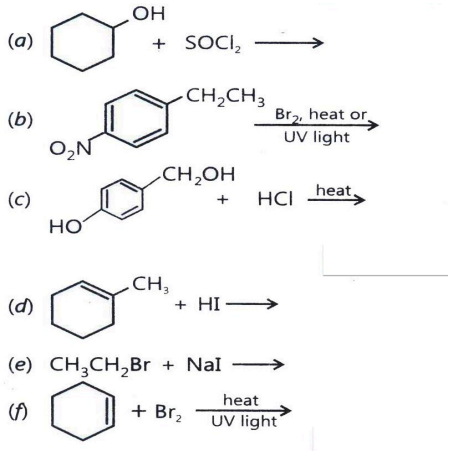
(iii) 2-bromopentane is treated with alcoholic KOH?

Write the chemical equations in support of your answer.

5 Marks 2 x 5 = 10

14) Write the electronic configurations of the elements with the atomic numbers 61, 91, 101, and 109.

15) Draw the structure of major monohalo products in each of the following reactions:



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