



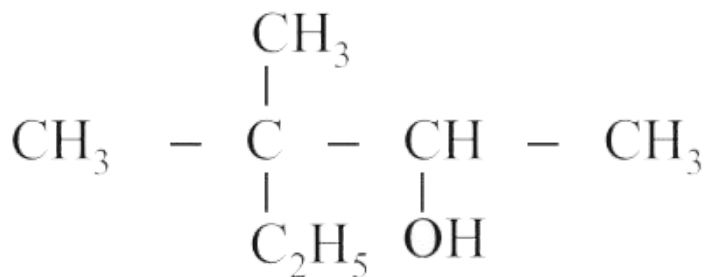
## CHEMISTRY

### BOOKS - CBSE COMPLEMENTARY MATERIAL CHEMISTRY (HINGLISH)

### SOLVED SAMPLE PAPER CBSE DELHI-2018

#### Sample Paper

1. Write the IUPAC name of the following





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2. Out of chlorobenzene and benzyl chloride, which one gets easily hydrolysed by aqueous NaOH and why?



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3.  $\text{CO}(g)$  and  $\text{H}_2(g)$  react to give different products in the presence of different catalysts. Which ability of the catalyst is shown by these reactions ?



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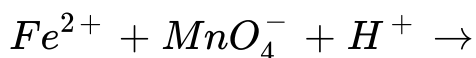
4. Write the coordination number and oxidation state of Platinum in the complex  $[Pt(en)_2Cl_2]$

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5. Analyses shows that FeO has a non-stoichiometric composition with formula  $Fe_{0.95}O_{1.00}$ . Give reason.

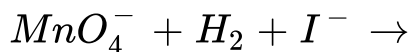
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6. Complete the chemical equations :



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7. Complete and balance the following chemical



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8. How do you convert the following?

Ethanal to Propanone

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9. How do you convert the following?

Toluene to Benzoic acid

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10. For the reaction  $2N_2O_5(g) \rightarrow 4NO_2(g) + O_2(g)$ , the rate of formation of  $NO_2(g)$  is  $2.8 \times 10^{-3} M s^{-1}$ . Calculate the rate of disappearance of  $N_2O_5(g)$ .

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11. Among the hydrides of Group-15 elements, which have the lowest boiling point

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12. Among the hydrides of Group-15 elements, which have the

maximum basic character?

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**13.** Among the hydrides of Group-15 elements, which have the highest bond angle?

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**14.** Among the hydrides of Group-15 elements, which have the maximum reducing character?

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**15.** Calculate the freezing point of a solution containing 60 g glucose (Molar mass =  $180 \text{ g mol}^{-1}$ ) in 250 g of water . ( $K_f$  of water =  $1.86 \text{ K kg mol}^{-1}$ )

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**16.** An element 'X' (At. Mass =  $40 \text{ g mol}^{-1}$ ) having f.c.c structure has unit cell edge length of 400 pm . Calculate the density of 'X' and the number of unit cells in 4 g of 'X' . ( $N_A = 6.022 \times 10^{23} \text{ mol}^{-1}$ ).

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**17.** Give reason for the following

Mesasurement of osinotic pressure method is preferred for the determination of molar masses of macmolecules such as proteins and polymers.

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**18.** Give reason for the following

Aquatic snimals are comfortable in colt water than in wam water

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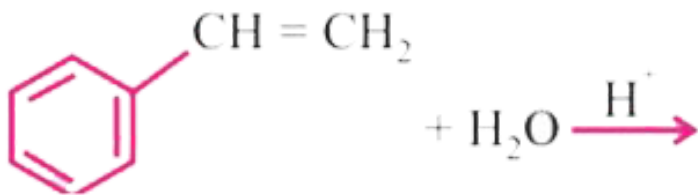


19. Give reason for the following

Elevation of boiling point 1 M KCl solution is nearly double than that of 1 M sugar solution.

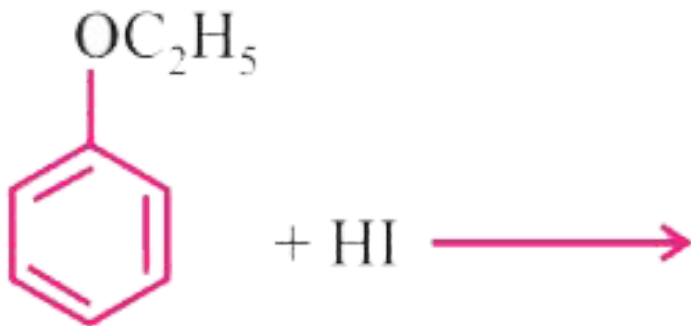
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20. Write the structures of the main products in the following reactions



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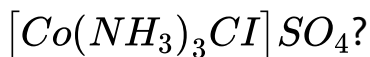


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22. Chemical formula for iron(III) hexacyanoferrate(II) is

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23. What type of isomerism is exhibited by the complex



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24. Write the type of isomerism exhibited by the complex



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25. (A), (B) and (C) are three non-cyclic functional isomers of a carbonyl compound with molecular formula  $C_4H_8O$ . Isomers (A) and (C) give positive Tollens' test whereas isomer (B) does not give Tollens' test but gives positive

Iodoform test. Isomers (A) and (B) on reduction with Zn/Hg

– Conc. HCl give the same product (D).

Write the structures of (A), (B), (C) and (D).

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**26.** (A), (B) and (C) are three non-cyclic functional isomers of

a carbonyl compound with molecular formula  $C_4H_8O$ .

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isomer (B) does not give Tollen's test but gives positive

iodoform test. Isomers (A) and (B) on reduction with

$Zn(Mg) | \text{conc. HCl}$  give the same product (D).

(a) Write the structures of (A), (B), (C) and (D).

(b) Out of (A), (B) and (C) isomers, which one is least

reactive towards addition of HCN?

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27. Identify the chiral molecule in following pair:



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28. Write the structure of the product when chlorobenzene is treated with methyl chloride in the presence of sodium metal and dry ether.

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29. Write the structure of the alkene formed by dehydrohalogenation of 1-bromo methyl cyclohexane with alcoholic KOH

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30. Give reasons:

$E^0$  value for  $Mn^{3+} / Mn^{2+}$  couple is much more positive than that for  $Fe^{3+} / Fe^{2+}$ .

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31. Give reasons:

Iron has higher enthalpy of atomisation than of copper

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32.  $Sc^{3+}$  is colourless in aqueous solution whereas  $Ti^{3+}$  is coloured.

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33. Write the chemical reactions involved in the process of extraction of Gold. Explain the role of dilute NaCN and Zn in this process

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**34.** Define the following with, an example each

Polysaccharides



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**35.** Define the following with, an example each

Denatured protein



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**36.** Define the following with, an example each

Essential amino acids



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**37.** A first order reaction is 50% completed in 40 minutes at 300 K and in 20 minutes at 320 K.

Calculate the activation energy of the reaction . (Given :  $\log 2 = 0.3010$  ,  $\log 4 = 0.6021$  ,  $R = 8.314 JK^{-1} mol^{-1}$  ) .

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**38.** Why is bithional added to soap ?

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**39.** What is tincture of Iodine? Write its one use

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40. Among the following which one acts as a food preservative ?

Aspartame, Aspirin, Sodium benzoate , Paracetamol .

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41. What happens when a freshly precipitated  $Fe(OH)_3$  is shaken with little amount of dilute solution of  $FeCl_3$  ?

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42. What happens when persistent dialysis of a colloidal solution is carried out.

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**43.** What happens when an emulsion is centrifuged?

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**44.** Shyam went to a grocery shop to purchase some food items. The shopkeeper packed all the items in polythene bags and gave them to Shyam. But Shyam refused to accept the polythene bags and asked the shopkeeper to pack the items in paper bags. He informed the shopkeeper about the heavy penalty imposed by the government for using polythene bags. The shopkeeper promised that he would use paper bags in future in place of polythene bags.

Answer the following

Write the values (at least two) shown by Shyam

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**45.** Shyam went to a grocery shop to purchase some food items. The shopkeeper packed all the items in polythene bags and gave them to Shyam. But Shyam refused to accept the polythene bags and asked the shopkeeper to pack the items in paper bags. He informed the shopkeeper about the heavy penalty imposed by the government for using polythene bags. The shopkeeper promised that he would use paper bags in future in place of polythene bags.

Answer the following

Write one structural difference between low-density polythene and high-density polythene.

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Answer the following

Why did Shyam refuse to accept the items in polythene bags?

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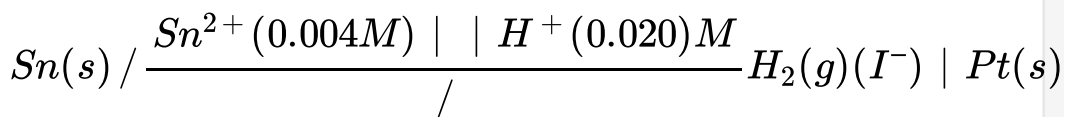
**47.** Shyam went to a grocery shop to purchase some food items. The shopkeeper packed all the items in polythene bags and gave them to Shyam. But Shyam refused to accept the polythene bags and asked the shopkeeper to pack the items in paper bags. He informed the shopkeeper about the heavy penalty imposed by the government for using polythene bags. The shopkeeper promised that he would use paper bags in future in place of polythene bags.

Answer the following

What is a biodegradable polymer? Give an example

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48. Write the cell reaction and calculate the e.m.f of the following cell at 298 K:

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49. Give reasons:

On the basis of  $E^\circ$  values.  $O_2$  gas should be liberated at anode but it is  $Cl_2$  gas which is liberated in the electrolysis of aqueous NaCl.

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**50.** Give reasons:

Conductivity of  $\text{CH}_3\text{COOH}$  decreases on dilution

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**51.** Write the reaction involved in the Hoffmann bromamide degradation reaction .

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**52.** Write the reactions involved in the following:

Diazotisation

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### 53. GABRIEL PHTHALIMIDE SYNTHESIS

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### 54. Give reasons

$(CH_3)_2NH$  is more basic than  $(CH_3)_3N$  in an aqueous solution.

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### 55. Give reasons

Aromatic diazonium salts are more stable than aliphatic diazonium salts.

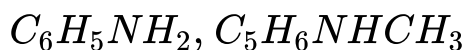
OR

Write the structures of the main products of the following reaction :



(b) Give a simple chemical test to distinguish Aniline and N,N - dimethiline

(c ) Arrange teh following in the increasing order  $PK_a$  values



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**56.** Give reasons:

$H_3PO_3$  undergoes disproportionstion reaction but

$H_3PO_4$  does not



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**57.** Give reasons:

When  $Cl_2$  reacts with excess of  $F_2$ ,  $ClF_3$  is formed and not  $FeCl_3$ .



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**58.** Give reasons:

Dioxygen is a gas while Sulphur is a solid at room temperature



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59. Draw the structure of  $XeF_4$  molecule.



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60. Draw the structures of the following



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