

# CBSE

## Sample Question Paper 1

### Chemistry Class XII

Time : 3 hrs

Maximum Marks : 70

#### General Instructions

- (i) All questions are compulsory.
- (ii) Question number 1 to 5 are very short answer questions and carry 1 mark each.
- (iii) Question number 6 to 10 are short answer questions and carry 2 marks each.
- (iv) Question number 11 to 22 are also short answer questions and carry 3 marks each.
- (v) Question number 23 is a value based question and carries 4 marks.
- (vi) Question number 24 to 26 are long answer questions and carry 5 marks each.
- (vii) Use log tables, if necessary. Use of calculators is not allowed.

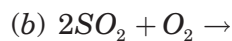
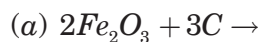
#### SECTION A

(1 × 5 = 5)

1. What is a Non-stoichiometric defect?
2. What is the IUPAC name of the given structure  $\text{CH}_3\text{CH}_2\text{NHCH}_3$ ?
3. Which process is used for the concentration of sulphide ores?
4. What is the role of zinc metal in the extraction of silver?
5. Which of the following is a disaccharide: Starch, Maltose , Fructose , Glucose?

**SECTION B****(2 × 5 = 10)**

6. Complete and balance the following chemical equations



7. Calculate the time to deposit 1.4 g of silver at cathode when a current of 2.0 A was passed through the solution of  $AgNO_3$  (Molar mass of  $Ag = 108 g mol^{-1}$ ,  $1F = 96500 C mol^{-1}$ )

8. An element with density  $4.2 g cm^{-3}$  forms a f.c.c unit cell with edge length  $2 \times 10^{-8} cm$ . Calculate the molar mass of the element. (Given  $N_A = 6.022 \times 10^{23} mol^{-1}$ )

9. How will you distinguish between

(i) Absorption and Adsorption

(ii) Physisorption and Chemisorption

**OR**

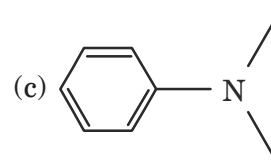
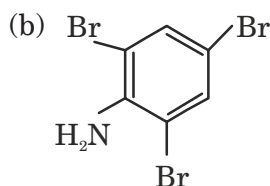
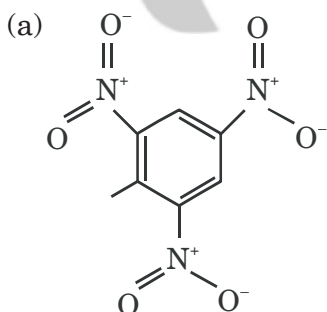
What is a Catalysis and What do you mean by activity and selectivity of catalysts?

10. What are food preservatives, Give some examples?

**SECTION C****(3 × 12 = 36)**

11. The electrical resistance of a column of  $1.05 M KOH$  solution of diameter 4 cm and length 52.2 cm is  $6.12 \times 10^3 ohm$ . Calculate its molar conductivity.

12. What is the IUPAC name of the given compound



OR

Write the structures of A, B, C in the given reaction:



13. 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:  $\log 2 = 0.3010, \log 4 = 0.6021, R = 8.314 JK^{-1} mol^{-1}$ )

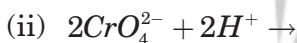
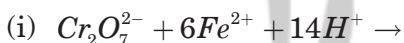
14. What happens when

- A beam of light is passed through a colloidal solution.
- Leather gets hardened after tanning
- NaCl solution is added to hydrated ferric oxide solution

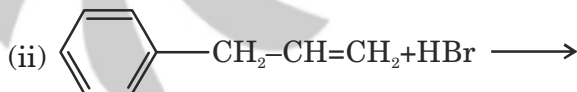
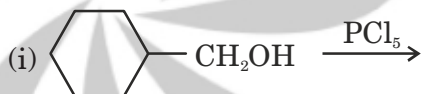
15. Explain the role of each the following in the extraction of metals from their ores:

- CO in the extraction of nickel.
- Zinc in the extraction of silver.
- Silica in the extraction of copper.

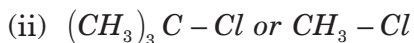
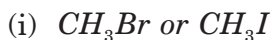
16. Complete the following chemical equations:



17. (a) Draw the structures of major monohalo products in each of the following reactions:



- (b) Which halogen compound in each of the following pairs will react faster in  $S_N2$  reaction:



18. (a) For the complex  $[Fe(H_2O)_6]^{3+}$ , write the hybridization, magnetic character and spin of the complex. (At. number:  $Fe = 26$ )
- (b) Draw one of the geometrical isomers of the complex  $[Pt(en)_2Cl_2]^{2+}$  which is optically inactive.
19. Draw the structure and name the product formed if the following alcohols are oxidized. Assume that an excess of oxidizing agent is used.
- (i)  $CH_3CH_2CH_2CH_2OH$
- (ii) 2-butenol
- (iii) 2-methyl-1-propanol
20. (i) Night-blindness is caused by the deficiency of which vitamin?
- (ii) Which base is found in nucleotide of RNA only.
- (iii) Glucose on reaction with HI gives n-hexane. What does it suggest about the structure of glucose?
21. Define the following in relation to proteins:
- (i) Peptide linkage
- (ii) Denaturation
- OR**
- (i) Scurvy is caused by the deficiency of which vitamin?
- (ii) Formation of proteins is caused due to which type of linkage?
- (iii) Write the product formed when glucose is treated with HI.
22. Write the name, the structure and the magnetic behavior of each of the following complexes:
- (i)  $[Pt(NH_3)Cl(NO_2)]$
- (ii)  $[Co(NH_3)_4Cl_2]Cl$
- (iii)  $Ni(CO)_4$

**SECTION D**

(4 × 1 = 4)

23. After watching a programme on TV about the presence of carcinogens (cancer causing agents) Potassium bromate and Potassium iodate in bread and other bakery products, Namrita a class XII student decided to make others aware about adverse affect of these carcinogens in different eatables. She consulted the school principal and requested her to instruct the canteen head to stop making and selling sandwiches, pizzas, burgers and other bakery products to the students. The Principal took an immediate action and instructed the canteen head to replace the bakery products with some vitamin and protein rich food like salads, fruit, sprouts etc .The decision was appreciated by the parents and was followed religiously by the students.

After reading the above passage, answer the following questions:

- What are the values displayed by the Namrita?
- Give two examples of water soluble vitamins.
- Write the two types of secondary structures of proteins.
- Which Polysaccharide component of carbohydrates is commonly present in bread?

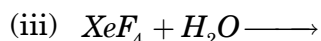
**SECTION E**

(5 × 3 = 15)

24. (a) Draw the structures of the following molecules:



(b) Complete the following chemical equations:



OR

(i) Which allotrope of phosphorus is more reactive and why?

(ii) Account for the following:

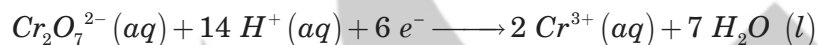
(a) Bond angle in  $NH_4^+$  is greater than that in  $NH_3$ (b) Reducing character decreases from  $SO_2$  to  $TeO_2$ .

25. (a) What type of a battery is lead storage battery? Write the anode and cathode reactions and the overall cell reaction occurring in the operation of a lead storage battery.

(b) Calculate the potential for half-cell containing

 $0.10\text{ M } K_2Cr_2O_7(aq), 0.20\text{ M } Cr^{3+}(aq) \text{ and } 1.0 \times 10^{-4}\text{ M } H^+(aq)$ 

The half-cell reaction is



26. An aromatic compound 'A' of molecular formula  $C_7H_7ON$  undergoes a series of reactions as shown below. Write the structures of A, B, C, D and E in the following reactions.

