

SAMPLE PAPER
SUBJECT- CHEMISTRY
CLASS XII 2016

Time allowed : Three Hours

Maximum Marks : 70

General Instructions:

1. All questions are compulsory against it.
 2. Question numbers 1 to 5 are very short –answer questions, carrying 1 mark each. Answer these in one word or about one sentence each.
 3. Question numbers 6 to 10 are short answer questions, carrying 2 marks each.
 4. Question numbers 11 to 22 are short answer questions of 3 marks each . Answer these in about 40 words each.
 5. Question numbers 23 is value based and carries 4 marks.
 6. Question numbers 24 to 25 are long –answer questions of 5 marks each.
 7. Use log Tables, if necessary. Use of calculators is not permitted.
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1. Write the IUPAC name of the given compound. 1
 $\text{C}_6\text{H}_5\text{N}(\text{CH}_3)_2$
2. Why the dipole moment of Chlorobenzene is lower than that of Cyclohexyl chloride? 1
3. Name the process to convert precipitate to colloidal sol. 1
4. What do you mean by Frenkel defect? Why is it called Stoichiometric defect. 1
5. Why Nitrogen is less reactive than Phosphorous? 1
6. How do the order of a reaction differ from its molecularity? What will be the unit of the rate constant of zero order reaction. 2
7. Write the chemical equations involved in the following reactions- 2
 - i. Cannizzaro Reaction
 - ii. Carbyl Amine Reaction.
8. i. What is Raoult's law for solution with non volatile solute. 2
ii. What is the value of ΔV mixing for ideal solution? 2
9. i. Write the ionization isomer of the compound- $[\text{Co}(\text{Cl})(\text{NH}_3)_5]\text{SO}_4$ 1
ii. Show the filling of 5 electrons in d orbitals central atom in Octahedral complex in the effect of strong field ligand. 1
10. Write the Structures of the following- 2
 - i. XeF_4
 - ii. SF_6
11. i. Write the mechanism of Esterification. 1

ii. State the reason –
 - a. Ether has low boiling point than alcohol of comparable molecular mass. 1
 - b. Phenol is more acidic than Ethyl Alcohol. 1
12. How can you change –
 - i. Ethanol to Ethanoic acid 1
 - ii. Acetic Acid to Ethylamine 1
 - iii. Phenol to Nitro benzene 1Write the reactions involved.

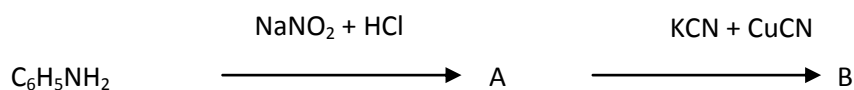
13. Write two structural differences between RNA and DNA.
- What are the hydrolysis products of complete hydrolysis of Nucleotide with Adenine base. 1
 - Two strands of DNA are not identical but are complementary. Explain. 1
- 14.
- What is the role of depressant in froth floatation process? 1
 - What is the role of Silica in the metallurgy of copper? 1
 - Name the process used for refining of ultrapure element. 1
15. Account for the following-
- Why the bleaching action of Chlorine is permanent. 1
 - Why ICl more reactive than I₂. 1
 - Why has it been difficult to study the chemistry of radon?
1
16. a. A Coordination compound has the formula $\text{CoCl}_3 \cdot 4\text{NH}_3$. It does not liberate ammonia but forms a ppt with one mole of AgNO_3 . Write the structure and IUPAC name of the complex compound.
b. Draw the splitting of d orbital of octahedral complex in effect of ligand.
17. i. What percentage of volume of a solid having FCC structure is occupied by atoms constituting it. 1
ii. Analysis shows that a metal oxide has the empirical formula $\text{M}_{0.96}\text{O}_{1.0}$. Calculate the percentage of M^{+2} and M^{+3} ions in the crystal. 2
18. i. What are biodegradable polymers? Give one example. 1
ii. Write the structure and name of the monomer of the following polymer -. 2
- PVC
 - Bakelite
19. i. A first order reaction takes 40 min. in for 30% decomposition. Calculate $t_{1/2}$ for the reaction . 2
ii. What is meant by pseudo order reactions? 1
20. i. Why aniline is less basic than aliphatic amine? 1
ii. How is basic strength of aromatic amines affected by the presence of electron releasing group on the basis of benzene ring ?. 1
iii. Why cannot primary amines be prepared by Gabriel Phthalimide synthesis. 1
21. Define the following-
- Multimolecular colloids 1
 - Coagulation 1
 - Critical Micellisation Concentration 1
22. Henry Law Constant for the solubility of methane in Benzene at 298 K is 4.27×10^5 mm Hg. Calculate the solubility (mole fraction) of methane in benzene at 298 K under 760 mm Hg. 3
23. Due to hectic and busy schedule, Mr Singh started taking junk food in the lunch break and slowly became habitual of eating food irregularly to excel in his field. One day during meeting

he felt severe chest pain and fell down. Mr Khanna a close friend of Mr Singh took him to doctor immediately. The doctor diagnosed that Mr Singh was suffering from acidity and prescribed some medicines. Mr Khanna advised him to eat home made food and change his lifestyle by doing yoga, meditation and some physical exercise. Mr Singh followed his friend's advice and after few days he started feeling better.

After reading the above passage answer the following :

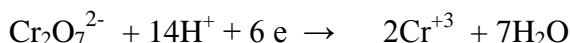
- i. What are the values (at least two) displayed by Mr Khanna? 1
- ii. What are antacids? Give one example. 1
- iii. Would it be advisable to take antacids for long period of time? Give reason. 2

24. a. Identify A and B in the following reaction- 2



- b. Distinguish between the following pairs- 2
 - i. Acetaldehyde and Acetone
 - ii. Acetaldehyde and Formaldehyde
- c. During preparation of esters from a carboxylic acid and an alcohol in the presence of an acid catalyst the water or the ester should be removed as soon as it is formed. 1

25. i. Consider the reaction :



- What is the quantity of electricity in coulomb needed to reduce 1 mol of $\text{Cr}_2\text{O}_7^{2-}$. 1
- ii What amount of charge in coulomb is required to deposit 1 mole of Cu from Cu^{++} . 1
- iii. Write the chemistry of recharging of lead storage battery highlighting all the materials that are involved during recharging? 3
26. i. Write the method for preparation of Pot. Dichromate its ore. 2

ii. State the reason for following-

- a. Actinide contraction is more than lanthanide contraction. 1
- b. Transition elements have high atomization energy. 1
- c. The transition metals are well known for the formation of interstitial compounds. 1

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