

**SSLC Top Test Series
Chemistry**Time : 45 Mnts
Score : 20

Std. 10

Type - A (Chap. 1, 2, 3, 4)

Instructions :

- The first 7 minutes is cool - off time
- This time is to be spent for reading the questions paper
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- Read the instructions carefully and attempt the questions

Qns. 1 to 4, write answer to any 3 questions. 1 mark.

1. Which of the subshell in the fourth shell is having the highest energy?
2. What is the ore of iron?
3. What is the mass of 3.011×10^{23} water (H_2O) molecules?
4. The electrode at which reduction take place is _____

From 5 to 9 write answers to any 4 questions. 2 marks.

5. Calamine is an ore
 - a. It is the ore of which metals?
 - b. Write the equation of the reaction when this is subjected to calcination.
6. An element having 3 shells contains 4 electrons in the outer most subshell.
 - a. What is the atomic number of this element?
 - b. Write its subshell electronic configuration.
7. Write the correct statements from the followings with respect to galvanic cell.
 - a. Electron flow is from cathode to anode
 - b. Cathode has positive charge
 - c. Chemical energy is converted to electrical energy
 - d. Metal placed at the lower position acts as anode.
8. Calculate the number of atoms in 18g of water (H_2O) [H-1, O-16]
9. When a zinc rod is placed in $AgNO_3$ solution, displacement reaction will takeplace. Write the equation of this redox reaction.

From 10 to 13, write answers to any 3 questions. 3 marks.

10. a. Calculate the number of molecules in 11.1 g of $CaCl_2$.
 - b. What will be the number of atoms in it.
 - c. What will be the volume of CO_2 and STP, when this much molecules are taken,
(Hint: Ca - 40, Cl - 35.5)
11. What are the 3 substances taken in blast furnace during this extraction of iron?
 - b. How the gangue SiO_2 in ore of iron removed?
12. The electronic configuration of an atom is $[Ar]4S^1$.
 - a) What is the atomic number?
 - b) Find the group and period of this element.
13. a. What are the ions in NaCl solution?
 - b. A few change of phenolphthaline is added to NaCl solution. What will be the observations, when this solution is electrolysed? Explain the reasons.

Type - B**From 1 to 4 write answers to any 3 questions. 1 mark**

1. What is formed at anode when molten sodium chloride is electrolysed?
2. Which of the following subshell can accommodate a maximum of 10 electrons?
[f, s, d, p]
3. What is magnetic ore of iron?
4. The number of atoms in 12g of carbons is _____ (C-12).

From 5 to 9 write answers to any 4 questions. 2 marks

5. Write reasons for the followings
 - a. Aluminium vessels fades
 - b. When magnesium is added in dilute HCl, bubbles are formed.
6. a. Which of the followings in the correct electronic configuration of ${}_{24}\text{Cr}$?
 - (i) $[\text{Ar}]3d^4 4s^2$
 - (ii) $[\text{Ar}]3d^5 4s^1$
- b. Write the sub shell electronic configuration of Cr^{3+} ion?
7. a. Write Boyle's law.
- b. According to Boyle's law = a constant
8. Arrange the followings in the order of increasing reactivity.
[Ag, Mg, Au, Zn]
9. The ores of some metals are roasted. What are the purpose of roasting?

From 10 to13 write answer to any 3 questions. 3 marks.

10. a. Calculate GMM of NaNO_3 (Na - 23, N - 14, O - 16)
- b. Calculate the number of molecules and atoms in 17g of NaNO_3 .
11. a. During the extraction of aluminium molten cryolite is added with Al_2O_3 and the mixture is electrolysed. What is the need of molten cryolite?
- b. Write reaction at cathode in this process.
12. The atomic number of Cu is 29.
 - a) Write the subshell electronic configuration of this element.
 - b) Write the subshell electronic configuration of Cu^- and Cu^{2+} ions.
13. Explain the following
 - a. Electrolyte
 - b. Galvanic cell
 - c. Reactivity series

Type - C**[From 1 to 4 write answers to any 3 questions] (1 mark)**

1. What is meant by ores?
2. Write the subshell electronic configuration of oxygen (atomic number 8)
3. Write the number of atoms in 1g of hydrogen.
4. In Mg-Fe cell the flow of electron is from _____ to _____.

[From 5 to 9 write answers to any 4 questions] (2marks)

5. Consider the electrolysis of molten sodium chloride.
 - a) Write the ionization equation of sodium chloride.
 - b) Which of the ions formed is attracted towards positive electrode?
6. Write 2 methods used to convert concentrated ore to oxide.
7. Arrange the following subshells in the order of increasing energy.
3d 1s 4p 4s 5s 4f 3p 6s
8. 98g of H_2SO_4 is kept in a bottle.
 - a) Find the GMM of H_2SO_4 .
 - b) How many molecules are present in 98g of H_2SO_4 ? How many atoms are there?
9. Write any 4 specialities of s – block elements. 2

[From 10 to 13 write answers to any 3 questions] (3marks)

10. The electronic configuration of the element M is $[\text{Ar}]3d^3 4s^2$
 - a) Write the complete subshell electronic configuration of this. 1
 - b) Write the subshell electronic configuration of M^{3+} ion. 1
 - c) Identify the group and period of this element. 1
11. Some compounds are given below.
 - a) 200 g CaCO_3
 - b) 10g hydrogen gas
 - c) 5 mol CO_2
 Arrange these in the order of increasing number of atoms 3
12. Explain the followings.
 - a) Anode
 - b) Galvanic cell.
13. a) What is the method used for the purification of copper?
- b) What is the solution used for this purpose?
- c) Write the equations of this reaction.

Std. 10

Type - A (Chap. 5. 6. 7)

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From 1 to 4 write answers to any 3 questions. 1 mark.

1. Ammonium chloride on heating givesand
2. Define substitution reaction.
3. The product formed during the industrial preparation of soap is
4. What is meant by functional group?

From 5 to 9 write answers to any 4 questions. 2 marks

5. In the compound 2, 2 Dimethylpentane,
 - a. What are elements present in this?
 - b. Write the structure of one of the isomer of this compound.
6. Write 2 important use of sulphuric acid
7. But - 2 - ene is an unsaturated hydrocarbon with a double bond.
 - a. What is the general name of unsaturated hydrocarbon with double bond?
 - b. Write the equation of the addition reaction of but - 2 - ene with HCl
8. a) $\text{CH}_2=\text{CH}_2+\text{H}_2 \rightarrow$ _____
 b) This type of reaction is called _____
9. Explain the effect of pressure in the reversible reaction $\text{N}_{2(g)} + \text{O}_{2(g)} \rightleftharpoons 2\text{NO}_{(g)}$

From 10 to 13 write answers to any 3 questions. 3 marks

10. Consider the compound $\text{CH}_3 - \text{CH}_2 - \underset{\text{CH}_3}{\underset{|}{\text{CH}}} - \text{CH}_2 - \underset{\text{CH}_3}{\underset{|}{\text{CH}}} - \text{CH}_3$
 - a. Number the longest carbon chain of this compound according to IUPAC rule.
 - b. Write the IUPAC name of this compound
11. $\text{A}_{(g)} + 2\text{B}_{(g)} \rightleftharpoons 2\text{C}_{(g)} + 2\text{D}_{(g)} + \text{Heat}$
 In this reversible reaction, how the following changes effect the forward reaction.
 - a. Temperature decreased
 - b. More B is added
 - c. Pressure increased
12. Write the structure 2 -methylbutane.
13. Write the IUPAC names of the followings.
 - a. $\text{CH}_3 - \underset{\text{Br}}{\underset{|}{\text{CH}}} - \underset{\text{Br}}{\underset{|}{\text{CH}}} - \text{CH}_3$
 - b. HCOOH
 - c. $\text{CH}_3 - \text{O} - \text{CH}_2 - \text{CH}_2$

Type - B

[From 1 to 4 write answers to any 3 questions] (1 mark)

1. Which of the following is an alkene?
 $[\text{C}_2\text{H}_6 \quad \text{C}_2\text{H}_2 \quad \text{C}_3\text{H}_6]$
2. The nature of ammonia is _____ (Acidic/Basic/Neutral)
3. What is the monomer of natural rubber?
4. The structure of methanol is _____

From 5 to 9 write answers to any 4 questions. 2 marks

5. a. Write the structure of an alkyne contain 3 carbon atoms
 b. Write the IUPAC name of this compound
6. Concentrated sulphuric acid is added to glucose ($\text{C}_6\text{H}_{12}\text{O}_6$)
 - a. Write the observation of this reaction
 - b. Which property of sulphuric acid is responsible for this?

7. Write any 2 uses of ethanol
8. a) Write Le-Chatelier principle.
b) If pressure is increased, what happens in the following equilibrium?



9. Write the IUPAC names of the following compounds.
- a. $\text{CH}_3 - \text{CH}_2 - \underset{\text{CH}_2 - \text{CH}_2 - \text{CH}_3}{\text{CH}} - \text{CH}_2 - \text{CH}_3$ b. $\text{CH}_3 - \underset{\text{OH}}{\text{CH}} - \text{CH}_3$

From 5 to 9 write answers to any 4 questions. 2 marks

10. The equation of an addition reaction is given below.
 $\text{CH}_3 - \text{CH} = \text{CH} - \text{CH}_3 + \text{HBr} \rightarrow \text{(A)}$
- a. Write the structure of the compound A
b. Write the structure and IUPAC name of the position isomer of the compound A.
11. Write 3 specialities of chemical equilibrium
12. Write the names of following compounds.
- a) $\text{CH}_3 - \text{O} - \text{CH}_3$
b) $\text{CH}_3 - \text{CH}_2 - \underset{\text{CH}_2 - \text{CH}_3}{\text{CH}} - \text{CH}_2 - \text{CH}_3$
c) $\text{CH}_3 - \text{CH}_2 - \text{CH}_2 - \text{OH}$
13. a. What are soaps?
b. What are the merits of detergents?

Type - C

[From 1 to 4 write answers to any 3 questions] (1 mark)

1. What is the use of CaO during the preparation of ammonia in the laboratory?
2. What is the general formula of alkane?
3. Write the structural formula of butane.
4. The solubility of ammonia in water is
(low, high, insoluble)

[From 5 to 9 write answers to any 4 questions] (2 marks)

5. A reversible reaction involves 2 processes.
a) What are these processes?
b) Why do reversible process attain equilibrium?
6. The structures of some organic compounds are given below. Write the IUPAC names of these.
- a. $\text{CH}_3 - \text{CH}_2 - \text{Cl}$ b. $\text{CH}_3 - \text{OH}$
c. $\text{CH}_3 - \text{CH}_2 - \text{CH}_2 - \text{I}$ d. $\text{CH}_3 - \text{O} - \text{CH}_3$
7. Write 2 examples for the dehydration property of sulphuric acid.
8. What is the difference between liquor ammonia and liquid ammonia?
9. Write the names of the monomers of the following substances.
a) Teflon b) Polythene

[From 10 to 13 write answers to any 3 questions] (3 marks)

10. The names of some compounds are given below. Write their structures.
a) 2,2-Dimethylpropane b) Pentanoic acid
c) 2,2,3-Trimethyloctane
11. Write the equations of the reaction of methane with chlorine in presence of sun light forming chloromethane and dichloromethane.
12. Write difference between reversible and irreversible reactions.
13. Explain the followings.
a) Molasses b) Fermentation c) Vinegar