

SSLC EXAMINATION, MARCH - 2025

CHEMISTRY

(English)

Time : 1½ Hours

Total Score : 40

Instructions :

- The first 15 minutes is cool-off time.
- You may use this time to read the questions and plan your answers.
- Answer only on the basis of instructions and questions given.
- Consider score and time while answering.

	Score
SECTION - A	
Answer any 4 questions from 1 to 5. Each question carries 1 score.	4x1=4
1. Which of the given compounds is a mineral of Aluminium ? (Calamine, Cuprite, Cryolite, Magnetite)	1
2. Which polymer is formed from isoprene ?	1
3. Find the total number of atoms in 2 GMM water (H_2O).	1
4. Which is the product obtained when SO_3 gas is dissolved in concentrated sulphuric acid ?	1
5. Many of the metals in _____ block are used as catalysts in petroleum industry. (s, p, d, f)	1

SECTION - B

Answer any 4 questions from 6 to 10. Each question carries 2 scores.	4x2=8
6. Classify the following compounds into alkanes, alkenes and alkynes. C_2H_4 , C_5H_{12} , C_3H_8 , C_7H_{12}	2
7. Two gases Oxygen and Nitrogen at STP are given.	
(a) Calculate the number of molecules in 64 g of Oxygen.	1
(b) Calculate the mass of Nitrogen having the same volume as that of 64 g of Oxygen.	1
(Hint : Atomic mass of Oxygen = 16, Nitrogen = 14)	

P.T.O.

- | | Score |
|--|-------|
| 8. Two reactions related to extraction of metals are given. Among these reactions identify calcination and roasting. | |
| (a) Cu_2S ore is converted to Cu_2O by heating. | 1 |
| (b) Carbonates and hydroxides of metals decompose to form their oxides. | 1 |
| 9. Identify A and B. | |
| (a) $\text{CH}_3 - \text{OH} + \text{CO} \xrightarrow{\text{catalyst}} \text{--- (A) ---}$ | 1 |
| (b) $\text{CHCl}_3 + \text{Cl}_2 \longrightarrow \text{--- (B) ---} + \text{HCl}$ | 1 |
| 10. The chemical formula of a compound is $\text{C}_2\text{H}_6\text{O}$. | |
| (a) Write the structural formula of any one of the functional isomers. | 1 |
| (b) Write the IUPAC name of this functional isomer. | 1 |

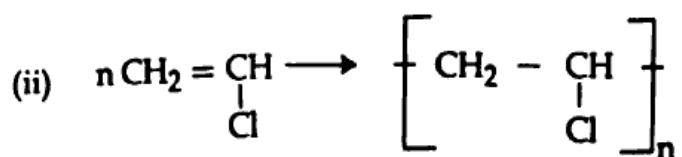
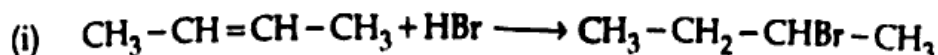
SECTION - C

Answer any 4 questions from 11 to 15. Each question carries 3 scores.

4x3=12

11. Copper is electroplated on an iron bangle.
- | | |
|--|---|
| (a) Which electrolyte is used here ? | 1 |
| (b) Write any one of the advantages of electroplating. | 1 |
| (c) Does the intensity of colour of electrolyte change during this process ? Why ? | 1 |
12. Subshell electronic configuration of an element 'A' is given in two different ways.
(Symbol is not real)
- | | |
|--|---|
| (i) $1s^2 2s^2 2p^6 3s^2 3p^6 3d^2$ | |
| (ii) $1s^2 2s^2 2p^6 3s^2 3p^6 4s^2$ | |
| (a) Which of these is the correct subshell electronic configuration ? Why ? | 2 |
| (b) Identify the block in the periodic table to which this element belongs ? | 1 |
13. Two reversible reactions are given.
- | | |
|---|---|
| (I) $\text{H}_{2(g)} + \text{I}_{2(g)} \rightleftharpoons 2\text{HI}_{(g)} + \text{Heat}$ | |
| (II) $2\text{SO}_{2(g)} + \text{O}_{2(g)} \rightleftharpoons 2\text{SO}_{3(g)} + \text{Heat}$ | |
| (a) Identify the reaction in which the pressure has no effect. | 1 |
| (b) How do the following factors influence the amount of product in the reaction (II) ? | 2 |
| (i) Increase the temperature | |
| (ii) Increase the pressure | |

14. Chemical equations of some reactions are given.



(a) Which types of reactions are these ?

1

(b) Identify the product in the reaction (ii) and write any one use of it.

2

15. Volume and number of molecules of some gases at 27°C and 2 atm pressure are given in the table.

Gas	Volume (L)	Number of molecules
Nitrogen	10	x
Carbon dioxide	(i)	2x
Oxygen	5	(ii)

(a) Complete the table.

1

(b) What will be the volume of carbon dioxide gas if the pressure is increased to 4 atm ?

2

(Temperature and number of molecules remain constant)

SECTION - D

Answer any 4 questions from 16 to 20. Each question carries 4 scores.

4x4=16

16. Manganese (Mn) is an element that belongs to d block in the periodic table.

(a) Outer subshell electronic configuration of Mn is $3d^5 4s^2$.

1

Find the atomic number of Manganese.

(b) Find the oxidation state of Mn in Mn_2O_7 .

1

(c) Write period number and group number of Manganese.

1

(d) Write the subshell electronic configuration of Mn^{4+} ion.

1

(Hint : Oxidation state of Oxygen = -2)

17. A few drops of the solution 'X' is added to Magnesium sulphate solution taken in a test tube. A white precipitate is formed.

(a) What is 'X' ?

1

(b) What is the chemical name of white precipitate formed here ?

1

(c) What happens to the white precipitate when dilute hydrochloric acid is added ?

1

(d) Which type of salt is identified by this experiment ?

1

18. Three metals Ag, Mg, Cu and their salt solutions are given.
- How many galvanic cells can be constructed using these metals ? 1
 - If we construct a galvanic cell using the most reactive metal and the least reactive metal from the given metals, identify the cathode and anode. 1
 - Write the chemical equation of the reaction which takes place at anode and cathode in the above cell. 2
19. Iron is a very important metal in the industrial and construction field.
- Write the name and chemical formula of ore of iron used in the industrial production of iron. 1
 - Write the chemical equation of slag formation in the industrial production of iron. 1
 - Which mineral of iron is known as fool's gold ? 1
 - Write the names of two alloy steels which contain the same constituent elements. 1
20. Match the following suitably. 4

A	B	C
$\begin{array}{c} \text{CH}_3 \\ \\ \text{CH}_3 - \text{CH} - \text{CH} - \text{CH}_3 \\ \\ \text{CH}_3 \end{array}$	$\text{C}_3\text{H}_8\text{O}$	Pentanoic acid
$\text{CH}_3 - \text{CH} = \text{CH} - \text{CH}_3$	C_6H_{14}	Propan-2-ol
$\begin{array}{c} \text{CH}_3 - \text{CH} - \text{CH}_3 \\ \\ \text{OH} \end{array}$	$\text{C}_5\text{H}_{10}\text{O}_2$	But-2-ene
$\text{CH}_3 - \text{CH}_2 - \text{CH}_2 - \text{CH}_2 - \text{COOH}$	C_4H_8	2,3-Dimethylbutane