

Sl. No.

SSLC MODEL EXAMINATION, FEBRUARY - 2020

CHEMISTRY

(English)

Time : 1½ Hours

Total Score : 40

General Instructions :

- The first 15 minutes is the cool-off time. You may use the time to read and plan your answers.
- Answer the questions only after reading the instructions and questions thoroughly.
- Five questions are given in each Section. Answer any four from each Section.

SECTION - A

Score

(Answer any 4 questions from 1 to 5. Each question carries 1 score.)

- | | | |
|----|---|---|
| 1. | Which one of the following subshells is not possible in an atom ?
(2p, 3f, 1s, 4d) | 1 |
| 2. | Which is the monomer of polythene ?
[Chlorine, Ethene, Vinyl chloride, Isoprene] | 1 |
| 3. | The relationship between volume and number of molecules of a gas at constant temperature and pressure is known as _____.
[Charles' law, Avagadro's law, Boyle's law, Le-Chatelier's Principle] | 1 |
| 4. | When molten sodium chloride (NaCl) is electrolysed, the gas liberated at the anode is _____. | 1 |
| 5. | Find the relation and fill up suitably.
Iron : Haematite
Aluminium : _____ | 1 |

SECTION - B

(Answer any 4 questions from 6 to 10. Each question carries 2 scores.)

6. The molecular mass of water (H_2O) is 18.
- (a) Find the mass of 1 GMM H_2O . 1
- (b) How many moles of molecules are there in 180 g of H_2O ? 1
7. Haematite is converted into iron by using the blast furnace.
- (a) Which are the substances fed into the blast furnace along with the ore of iron? 1
- (b) Which compound acts as the reducing agent in the blast furnace? 1
8. FeCl_2 and FeCl_3 are two different chlorides of iron.
- [Hint : Atomic number of Fe = 26
Oxidation state of Cl = (-1)]
- (a) Find the oxidation state of Fe in FeCl_2 . 1
- (b) Write down the subshell wise electronic configuration of Fe^{3+} . 1
9. (a) Which homologous series do the hydrocarbons with general formula C_nH_{2n} belong to? 1
[alkane, alkene, alkyne]
- (b) Write the structural formula of a member of the same homologous series having 3 carbon atoms. 1
10. Soaps and detergents are cleansing agents.
- (a) Name the byproduct in the industrial production of soap. 1
- (b) How does excessive use of detergents destroy aquatic life? 1

SECTION - C

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

11. The relation between the volume and temperature of a fixed mass of gas at constant pressure is shown in the table.

Volume (V) (L)	Temperature (T) (K)
600	300
400	(P)
(Q)	500

- (a) Find (P) and (Q). 2
- (b) Which gas law is associated with the given relation? 1

12. Electroplating is one of the practical utilities of electrolysis. Copper can be coated on an iron bangle by this process.
- Which metal is connected to negative terminal of the battery in this process ? 1
 - Which is the electrolyte used here ? 1
 - Write down any other practical utility of electrolysis. 1
13. Match columns A, B and C suitably. 3

A	B	C
Characteristics of ore	Method of concentration	Example
Ore particles are heavier than the impurities	Froth floatation	Tin stone
Ore particles are lighter than the impurities	Magnetic separation	Ore of gold
Magnetic nature of ore	Levigation	Zinc sulphide

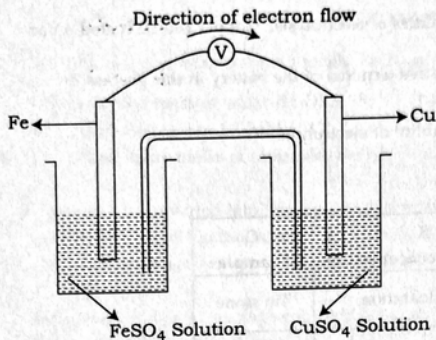
14. (a) Which are the chemicals required for the preparation of ammonia in the laboratory ? 1
- (b) Which is the drying agent used to remove moisture from ammonia ? 1
- (c) The gas jar used for collecting ammonia is kept inverted. Why ? 1
15. Given below is the structural formula of a hydrocarbon.
- $$\begin{array}{c} \text{CH}_3 - \text{CH}_2 - \text{CH}_2 - \text{CH} - \text{CH}_3 \\ | \\ \text{CH}_2 \\ | \\ \text{CH}_3 \end{array}$$
- What is the molecular formula of this hydrocarbon ? 1
 - Name the branch present. 1
 - Write down the IUPAC name of this hydrocarbon. 1

SECTION - D

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

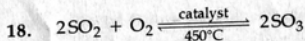
16. The atomic number of element X is 12. [Symbol is not real] 1
- Write the subshell wise electronic configuration of X. 1
 - Which period does this element belong to ? 1
 - Which block does it belong to ? 1
 - Write down the molecular formula of the chloride of X. 1
- [Hint : Valency of Cl = 1]

17.



The given diagram represents a galvanic cell.

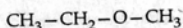
- (a) Which metal acts as the anode? 1
- (b) At which electrode reduction takes place? 1
- (c) Write down the chemical equation for the reduction reaction at this electrode. 1
- (d) Cu electrode is replaced by Ag electrode in this cell. Which metal will act as the anode then? 1



represents an important stage in the Industrial Preparation of Sulphuric acid.

- (a) By what name is the Industrial Preparation of Sulphuric acid known as? 1
- (b) Which is the catalyst used in this process? 1
- (c) How do the following changes influence the forward reaction? 2
- (i) More oxygen (O₂) is added
- (ii) Pressure is decreased

19. The structural formula of an organic compound is given below :



- (a) Identify the functional group present in this compound. 1
- (b) What are the compounds with the given functional group commonly called? 1
- (c) Write down the structural formula of its functional isomer and its IUPAC name. 2

20. Substitution reaction,
Polymerisation,
Combustion, Addition reaction,
Thermal cracking

Choose the name of the reaction from the box and complete the table.

Chemical Equation	Name of the reaction
$\text{CH}_2 = \text{CH}_2 + \text{H}_2 \longrightarrow \text{CH}_3 - \text{CH}_3$	<u>(a)</u>
$\text{CH}_3 - \text{CH}_3 + \text{Cl}_2 \longrightarrow \text{CH}_3 - \text{CH}_2\text{Cl} + \text{HCl}$	<u>(b)</u>
$\text{CH}_3 - \text{CH}_2 - \text{CH}_3 \longrightarrow \text{CH}_2 = \text{CH}_2 + \text{CH}_4$	<u>(c)</u>
$\text{CH}_4 + 2\text{O}_2 \longrightarrow \text{CO}_2 + 2\text{H}_2\text{O}$	<u>(d)</u>

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