Sl. No.

SSLC MODEL EXAMINATION, FEBRUARY - 2026

CHEMISTRY

(English)

Time : 1½ Hours Total Score : 40

Instructions :

- First 15 minutes are cool-off time. Read the questions carefully and plan the answer during this time.
- Write the answers according to the instructions.
- Consider the score while writing the answers.
- Answer only one question for questions having choice A and B.

Score

Answer all questions from 1 to 4. Each question carries 1 score. **4x1=4**

1. Choose the incorrect statement from the following statements related to some salts. 1

   (a) Na_2CO_3 is basic salt

   (b) NH_4Cl is an acidic salt

   (c) NaCl undergoes salt hydrolysis

   (d) KCl is a neutral salt

2. Some statements related to refining of metals are given below. 1

   Statement (1) : Metals like tin and lead are purified by distillation.

   Statement (2) : In electrolytic refining, the impure metal is used as the cathode.

   Statement (3) : When metals with low melting point contain impurities with high melting point, the method used is liquation.

   Which of the following is correct regarding these statements ?

   (a) **Statements (1), (2)** and **(3)** are correct

   (b) **Statement (1)** is incorrect but **(2)** and **(3)** are correct

   (c) **Statements (1)** and **(2)** are incorrect but **(3)** is correct

   (d) **Statements (1)** and **(2)** are correct but **(3)** is incorrect

P.T.O.

Score 1

3. The relationship between the volume and pressure of a fixed mass of gas at constant temperature is given randomly in the table. Match the following.

Pressure (P)	Volume (V)
(X) 8 atm	(p) 2 L
(Y) 2 atm	(q) 6 L
(Z) 4 atm	(r) 3 L
	(s) 12 L

Choose the **correct** answer from the options given below.

	(X)	(Y)	(Z)
(a)	(p)	(q)	(s)
(b)	(p)	(r)	(q)
(c)	(s)	(p)	(r)
(d)	(r)	(s)	(q)

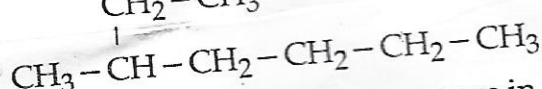
4. **Assertion (A) :** The 3s subshell has higher energy than the 2p subshell.
Reason (R) : The (n+l) value of 3s subshell is greater than that of 2p subshell.
Which among the following is **correct** ?

(a) **(A)** and **(R)** are true, **(R)** is the correct explanation of **(A)**.
(b) **(A)** and **(R)** are true, but **(R)** is not the correct explanation of **(A)**.
(c) **(A)** is true, **(R)** is false.
(d) **(A)** is false, **(R)** is true.

7x

Two questions from 5 to 11 have choice. Each question carries 2 scores

5. (A) Structure of a hydrocarbon is given.



(a) How many carbon atoms are in the main chain ?
(b) What is the position number of the branch ?

OR

(B) The IUPAC name of a compound is but-1-ene
(a) How many carbon atoms are present in this compound ?
(b) Write the structural formula of the alkyne containing the same number carbon atoms.

Score

6. Element X of the third period of the periodic table has the lowest ionisation enthalpy. (Symbol is not real)

(a) In which group does X belong ? 1

(b) What is its atomic number ? 1

7. Calamine is an ore of zinc.

(a) Write its chemical formula. 1

(b) Which method is used to convert the concentrated ore into oxide ? 1

8. A few data related to a gas is given below.

- Used for the production of nitrogen fertilizers required for plant growth.
- Has a basic nature.
- Its density is less than that of air.

(a) Which are the chemicals required to prepare this gas in the laboratory ? 1

(b) By what name is the concentrated aqueous solution of this gas known ? 1

9. (A) Molten sodium chloride is a good conductor because its ions can move freely.

(a) Which is the gas liberated at the anode during electrolysis of molten sodium chloride ? 1

(b) Write the chemical equation of the reaction taking place at the cathode. 1

OR

(B) Electroplating is one of the application of electrolysis. Copper can be coated on an iron bangle by this process.

(a) Which is the metal connected to the negative terminal of the battery here ? 1

(b) Write the chemical equation of the reaction taking place at the anode. 1

10. At 1 atm pressure and 273 K temperature, 320 g of SO_2 has a volume of 112 L.

(a) What is the volume of 10 g of H_2 under the same pressure and temperature ? 1

(b) State the gas law related to this situation. 1

(Hint : molar mass $SO_2 = 64$, $H_2 = 2$)

11. Esters generally have the pleasant smell of flowers and fruits. The structural formula of an ester is given.

$CH_3 - CH_2 - CH_2 - COO - CH_2 - CH_3$

(a) Which fruit's smell does this ester have ? 1

(b) Write the name of the carboxylic acid used to prepare this ester. 1

Score

Two questions from 12 to 17 have choice. Each question carries 3 scores. 6x3=18

12. A reversible reaction in equilibrium is given

$2NO(g) + O_2(g) \rightleftharpoons 2NO_2(g) + heat$

(a) Write any two characteristics of equilibrium. 1

(b) How do the following changes affect the rate of forward reaction ?

(i) Adding more oxygen 1

(ii) Increasing pressure 1

13. (A) Bauxite ore is concentrated by leaching with sodium hydroxide.

(a) Which compound is formed when bauxite dissolves in hot NaOH ? 1

(b) How is metal hydroxide precipitated from the solution ? 1

(c) How is the precipitate converted to alumina ? 1

OR

(B) Iron is produced in a steel towers, known as blast furnaces, which are 25 to 30 meters high. The mixture known as charge is fed from the top of the furnace via the cup and cone arrangement.

(a) What are the substances contained in the mixture known as charge, in addition to iron ore ? 1

(b) Which compound acts as the reducing agent here ? 1

(c) Write the chemical equation for the reduction of iron ore in the blast furnace. 1

14. Some galvanic cells and their cell voltages are given in a table. Analyze them and answer the questions.

Galvanic cell	Cell voltage
Zn – Cu	1.10 V
Al – Cu	2.00 V
Mg – Cu	2.72 V

(a) Among the electrodes used, which metal has the highest tendency to get oxidised in the redox reaction ? 1

(b) If a galvanic cell is constructed using magnesium and zinc electrodes, from which metal to which metal will be the direction of electron flow ? 1

(c) Write the redox reaction equation that takes place in this cell. 1

15. Various organic compounds are formed through organic chemical reactions.

(a) Write the structural formula of the compound formed when ethyne reacts with hydrogen chloride. 1

(b) What is the name of the compound formed when this compound undergoes polymerisation ? 1

(c) Write the chemical equation representing the formation of this polymer. 1

Score

16. (A) Analyse the chemical equation given below and answer the questions

$2SO_2(g) + O_2(g) \rightleftharpoons 2SO_3(g)$

(a) How many moles of SO_3 will be formed when 2 mol sulphur dioxide completely reacts with 1 mol oxygen ? 1

(b) How many molecules of oxygen are to be reacted with sulphur dioxide to obtain 20 mol of sulphur trioxide ? 1

(c) What is the volume of sulphur dioxide gas required to obtain 224 L of SO_3 gas at STP ? 1

(Hint : Molar $SO_2 = 64$, $SO_3 = 80$)

OR

(B) Quicklime is produced by heating limestone strongly.

$CaCO_3 + Heat \rightarrow CaO + CO_2$

(a) How many grams of limestone are to be heated to obtain 224 g of quicklime without remaining any unreacted reactant ? 2

(b) What is the mass of carbon dioxide liberated when this amount of quicklime if formed ? 1

(Hint : Molar mass $CaCO_3 = 100$, $CaO = 56$)

17. The chemical formulae of two oxides of manganese are given

(i) Mn_2O_3

(ii) MnO_2

(Hint : oxidation state of oxygen $= -2$, atomic number of manganese $= 25$)

(a) In which compounds manganese shows $+4$ oxidation state ? 1

(b) Write the subshell electron configuration of Mn^{4+}. 1

(c) Why do d-block elements show variable oxidation states ? 1

Question 18 has choice. It carries 4 scores. 1x4=4

18. (A) The compound X belongs to ether family. There is an ethyl group on each side of the ether linkage in it.

(a) Write the structural formula of this compound. 1

(b) What is the name of the functional group present in it ? 1

(c) Write the structural formula and IUPAC name of the metamer of this compound. 1

(d) Write the structural formula of a compound having the same molecular formula different functional group. 1

OR

(B) X and Y are two organic compounds with different functional groups and their molecular formula is $C_5H_{10}O$.

(a) Write the structural formula of compound X having $-CHO$ as functional group. 1

(b) By what name are compounds containing this functional group generally known ? 1

(c) Write the structural formula of compound Y. 1

(d) Write the structural formula of the position isomer of compound Y. 1

-oOo-