SSLC MODEL EXAMINATION

CHEMISTRY

Time : 1½ Hours **Total Score : 40**

General Instructions to Candidates:

- First 15 minutes in cool-off time.
- You may use the 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.

Scores

SECTION - A

(Answer 4 questions Each carries 1 score. (4 x 1 = 4)

1. 1 GMM of a substance contains _____ number of molecules. **1**

2. Write the name of catalyst used in the industrial production of sulphuric acid. **1**

3. Find the relation and fill up: **1**

C_nH_{2n+2} : Alkane

C_nH_{2n-2} : _____

4. Which one of the following subshells has the highest energy? **1**

(1s, 3d, 4s, 3p)

SECTION B

(Answer 4 questions Each question carries 2 scores.) (4 x 2 = 8)

5. a. What is electroplating? **1**

b. Which is the electrolyte used in electroplating of copper on an iron bangle? **1**

6. The number of molecules in a given sample of ammonia (NH_3) is $2\times6.022 \times 10^{23}$.

(a) Find the number of moles present in it. **1**

(Atomic mass: N=14, H=1)

(b) What is the mass of this sample? **1**

7. Choose the suitable method used in each of the following processes from the bracket.

(Liquation, Leaching, Froth floatation, Distillation]

(a) Concentration of sulphide ores. **1**

(b) Refining of metals with low boiling points. **1.**

8. (a) Which of the following metals is purified using distillation method? **1**

(Tin, Lead, Zinc, Iron)

(b) Which property of the metal is used here ? **1**

SECTION C

Answer 4 questions . Each question carries 3 scores.(4 x 3 = 12)

9. Subshell electronic configurations of a few elements are given. One of them is a noble gas.

[Symbols are not real]

P-$1s^2$ $2s^2$ $2p^6$

Q-$1s^2$ $2s^2$ $2p^5$

R-$1s^2$ $2s^2$ $2p_6$ $3s^2$ $3p^6$ $3d^2$ $4s^2$

S-$1s^2$ $2s^2$ $2p^6$ $3s^2$ $3p^6$ $4s^2$

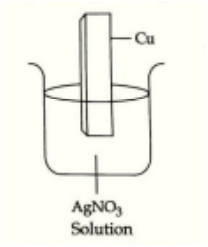
Answer the following questions.

(a) Which element has the highest Ionis ation Energy? **1**

(b) Which element belongs to s-block? **1**

(c) Which element shows variable oxidation state? **1**

10. Observe the figure in which a copper plate is immersed in $AgNO_3$ (Silver Nitrate) solution. (Reactivity: Cu > Ag)



(a) The reaction taking place here is a redox reaction. Why? **1**

(b) What change can be observed on the copper plate? **1**

(c) Write the equation of the oxidation reaction taking place here. **1**

11. $N_{2(g)} + 3H_{2(g)} \rightleftharpoons 2NH_{3(g)} + Heat$

How do the following changes influence the amount of the product?

a. Temperature decreases **1**

b. Pressure increases **1**

c. Ammonia produced is removed continuously from the system. **1**

12. The structural formula of an organic compound is given.

$CH_3 - CH_2 - CH = CH_2$

(a) Write down the IUPAC name of this compound. 1

(b) What is its molecular formula ? 1

(c) What is the molecular formula of the adjacent homologue coming after it ? 1

Answer 4 questions Each question carries 4 scores. (4 x 4 = 16)

13. A reversible reaction at equilibrium is given.

$2NO_{(g)} + O_{2(g)} \rightleftharpoons 2NO_{2(g)} + Heat$

(a) Write the equation of the forward reaction. 1

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

(i) Adding more oxygen 1

(ii) Increasing pressure 1

(c) What is the effect of catalyst in a reversible reaction at equilibrium? 1

14. The data given in the table shows the relation between the volume and temperature of a definite mass of gas. [Pressure is kept constant]

Volume(V)	Temperature (T)	V/T
600 mL	300 K....	.....(x)....
800 mL	...(y)....	2

(a) Find 'x' and 'y'. 2

(b) Which gas law is applied here? 1

(c) An inflated balloon is kept in Sunlight, it will burst. Give reason. 1

15. Aluminium is a widely used metal in daily life.

(a) Which is the ore of aluminium? 1

(b) Which method is used for the concentration of this ore? 1

(c) Which is the reducing agent used for the production of aluminium? 1

(d) Why cryolite is used during the production of aluminium? 1

16. Choose the compounds from the box and answer the following questions.

CH_3COOH, $CH_3 - COO - CH_2 - CH_3$,
$CH_3 - CH_2 - OH$, $C_{12}H_{22}O_{11}$

a. Which is a Carboxylic acid? 1

b. Which compound is an ester? 1

c. Identify ethanol. 1

c. Which substance is used in the industrial preparation of ethanol? 1