

SSLC EXAMINATION, MARCH - 2019

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.
- Questions with marks series 1, 2, 3 and 4 are categorised as sections A, B, C and D respectively.
- Five questions are given in each section. Answer **any four** from each section.
- Answer each question by keeping the time.

Score

SECTION - A

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

- | | | |
|------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---|
| ✓ 1. | Which of the following molecule can undergo addition reaction ?
(methane, ethane, propene, butane) | 1 |
| 2. | The glass used to make lenses and prisms is _____. | 1 |
| 3. | Atomic mass of Nitrogen is 14. Which of the following sample contain 6.022×10^{23} Nitrogen atoms ?
(7 g Nitrogen, 14 g Nitrogen, 28 g Nitrogen, 1 g Nitrogen) | 1 |
| 4. | The ore of a metal is lighter than the impurities. Which method is suitable for its concentration ? | 1 |
| 5. | A fresh piece of Mg ribbon loses its luster after a few days. This is due to the formation of the compound _____. | 1 |

SECTION - B

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

6. The last subshell of an element is $3p$ and there are 3 electrons in it.

- (a) Write the complete electronic configuration of the element. 1
- (b) Identify its period and group. 1

7. An iron nail is dipped in CuSO_4 solution. (Reactivity order $\text{Fe} > \text{Cu}$)

- (a) What is the change that can be noticed on the iron nail after a while ? 1
- (b) Write down the chemical equation of the oxidation reaction occurs here. 1

8. 4 g of NaOH is dissolved in water and the volume is made upto 1 L.

(1 mole of $\text{NaOH} = 40 \text{ g}$)

- (a) Calculate the molarity of the resultant solution. 1
- (b) How will you make 1 M solution of NaOH using the same amount (4 g) of NaOH ? 1

9. Concentrated Cu_2S is converted into oxide by roasting.

- (a) Write the process of roasting. 1
- (b) How impurities like sulphur and phosphorus are removed in this process ? 1

10. Ethanoic acid is an organic compound having industrial values.

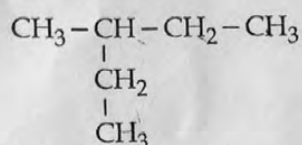
- (a) How ethanoic acid is manufactured industrially ? 1
- (b) Give any one use of ethanoic acid. 1

SECTION - C

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

1. $\text{H}_{2(g)} + \text{I}_{2(g)} \rightleftharpoons 2\text{HI}_{(g)}$
- (a) What is the total number of moles of reactants and products in the above reaction? 1
- (b) What is the effect of pressure in this reversible reaction? Explain. 2

2. The structure of a hydrocarbon is given below :



- (a) How many C - atoms are there in the main chain? Which is the word root? 1
- (b) Identify the branch and its position number. 1
- (c) Write the IUPAC name of this compound. 1

3. The chemical equation for the manufacture of ammonia is $\text{N}_{2(g)} + 3\text{H}_{2(g)} \rightarrow 2\text{NH}_{3(g)}$
- (a) Complete the following : 1
- 1 mol N_2 + $\text{H}_2 \rightarrow$ NH_3
- (b) Calculate the amount of H_2 required to react with 28 g of N_2 completely. 1
- [Hint : Molecular mass of $\text{N}_2 = 28$, $\text{H}_2 = 2$]
- (c) What will be the volume of NH_3 formed at STP, if 22.4 L of N_2 is completely reacted? 1

14. Consider the metals and solutions given in the box.

Zn, Mg, Cu, Ag, CuSO_4 solution, MgSO_4 solution

- (a) Which of the above metals are to be selected to construct a Galvanic cell? 1
- (b) Identify the anode and cathode of the cell. 1
- [Hint : Reactivity order $\text{Mg} > \text{Zn} > \text{Cu} > \text{Ag}$]
- (c) Write the redox reaction taking place in this cell. 1

15. Alumina is mixed with cryolite and subjected to electrolysis to extract aluminium.

- (a) Why cryolite is added to alumina? 1
- (b) Which are the ions present in alumina? 1
- (c) Write the equation of the reduction reaction taking place at negative electrode. 1

SECTION - D

Score

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

16. Zinc piece and zinc powder are taken in two test tubes and equal amount of dil. HCl is added.
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|-------------------------------------------------------------------------|---|
| (a) In which test tube does the reaction proceed faster ? | 1 |
| (b) Give the reason. | 2 |
| (c) Give an instance from daily life, where such condition is made use. | 1 |
17. The structure of two organic compounds are given below :
- (i) $\text{CH}_3 - \text{CH}_2 - \text{CH}_2 - \text{CH}_2 - \text{OH}$
- (ii) $\text{CH}_3 - \text{CH}_2 - \text{O} - \text{CH}_2 - \text{CH}_3$
- | | |
|-----------------------------------------------------------------------|---|
| (a) Write the molecular formula of these compounds. | 1 |
| (b) Which type of isomerism do they exhibit ? | 1 |
| (c) Explain this isomerism. | 1 |
| (d) Write the structural formula of a position isomer of compound (i) | 1 |
18. The atomic number of an element is 19.
- | | |
|-----------------------------------------------------------------------------|---|
| (a) Write the subshell electronic configuration. | 1 |
| (b) Identify its group, period, block and oxidation state. | 2 |
| (c) Write any one characteristic of the block to which the element belongs. | 1 |
19. Two organic reactions are given below :
- (i)
$$\begin{array}{c} \text{H} \\ | \\ \text{H} - \text{C} - \text{Cl} \\ | \\ \text{H} \end{array} + \text{Cl} - \text{Cl} \longrightarrow \text{A} + \text{HCl}$$
- (ii)
$$n \text{CH}_2 = \underset{\text{Cl}}{\text{CH}} \longrightarrow \text{B}$$
- | | |
|-----------------------------------------------------------------|---|
| (a) Identify the products A and B. | 1 |
| (b) Which type of reaction is (i) ? | 1 |
| (c) The product B has industrial values. Give its name and use. | 2 |
- 20.
- Aspirin is an antipyretic
 - Amoxicillin is an antibiotic
- | | |
|------------------------------------------------------------------------|---|
| (a) Give the functions of antipyretics and antibiotics. | 2 |
| (b) Write any two unhealthy practices among people in using medicines. | 2 |

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