

Sl. No.

SSLC MODEL EXAMINATION, FEBRUARY - 2018.

CHEMISTRY

(English)

Time : 1½ Hours

Total Score : 40

Instructions :

- First 15 minutes is cool-off time.
- Read all questions carefully.
- Questions with scores 1, 2, 3 and 4 are categorised separately.
- 5 questions are given in each category. Answer **any 4** questions from each category.
- Answer each question by keeping time.

Score .

Answer **any 4** questions from 1 to 5 (1 score each)

1. To which block of the periodic table does Lanthanoids belong ?
2. What will be the molar volume of a gas at STP in litres ?
3. Which substance is used to leach the ore in Aluminium extraction ?
4. To which category of organic compounds does Ethylethanoate belong ?
5. What is meant by denatured spirit ?

Answer **any 4** questions from 6 to 10 (2 scores each)

6. The third shell of an atom has 3 electrons :
 - (a) Write down the subshell electronic configuration of the atom.
 - (b) To which group of the periodic table does this element belong ?

7. Fill up suitably :

Element	Atomic mass	Amount taken in g	Number of Molecules	Number of atoms	Volume at STP L
H ₂	1	4g	(a)	$4 \times 6.022 \times 10^{23}$	(b)
He	4	(c)	$5 \times 6.022 \times 10^{23}$	(d)	112 L

8. The order of reactivity of some elements are given in the box.

Na > Mg > Zn > Fe > Ni > H > Cu

- (a) Which element loses its lustre most easily on exposure to air ?
- (b) Which is the element that cannot displace Hydrogen from dil.HCl ?

P.T.O.

9. Fill up the columns by choosing the appropriate ones from those given below.

Metal	Ore	Method of refining metals
Copper	(a)	(b)
Zinc	(c)	(d)

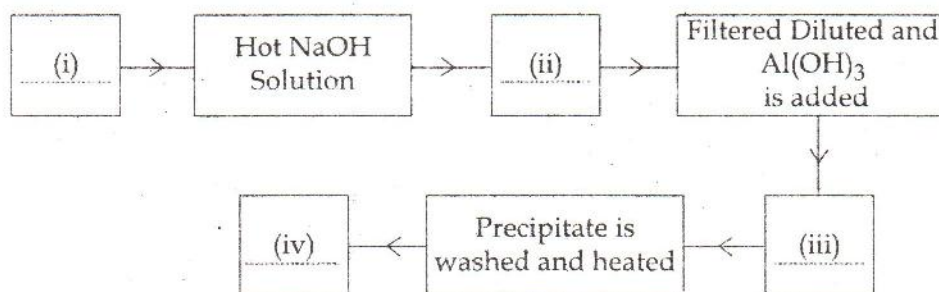
(Distillation, Cuprite, Electrolytic refining, Bauxite, Calamine, Liquation)

10. Give reason for the following :
- Cement is not kept on moist surfaces.
 - Concrete labourers wear gloves.

Answer **any 4** questions from **11** to **15** (3 scores each)

11. Equation showing the burning of ethane in air is given below.
 $2 \text{C}_2\text{H}_6 + 5\text{O}_2 \rightarrow 4 \text{CO}_2 + 6\text{H}_2\text{O}$
- How many mol. of Oxygen are required to burn 1 mol. of ethane completely ?
 - What will be the volume of CO_2 formed at STP on complete combustion of 150g of ethane ?
- (Atomic mass : H = 1, C = 12, O = 16)
12. Equal volumes of Con. HNO_3 are taken in two test tubes. A piece of copper is added to one test tube and equal mass of copper powder to the other. Brown gas is found to evolve from the test tubes.
- In which test tube does the reaction proceed faster. Why ?
 - State any other method to increase the rate of the reaction.
13. $\text{N}_2\text{O}_4(\text{g}) + \text{Heat} \rightleftharpoons 2\text{NO}_2(\text{g})$
- What will happen to the amount of NO_2 on increasing of temperature ?
 - State whether increase in pressure or decrease in pressure favours the forward reaction. Why ?

14. (a) Complete the given flow chart related with the concentration of Aluminium ore.



- The anode in Aluminium extraction is replaced frequently. Why ?
15. (a) Which type of glass is used to make window panes ? What are the materials used to make this glass ?
- Which substance is added to glass to give it blue colour ?

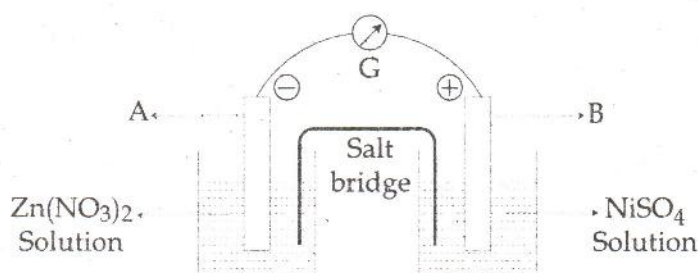
Answer any 4 questions from 16 to 20 (4 scores each)

16. Subshell electronic configurations of some elements are given. (Symbols are not real) :

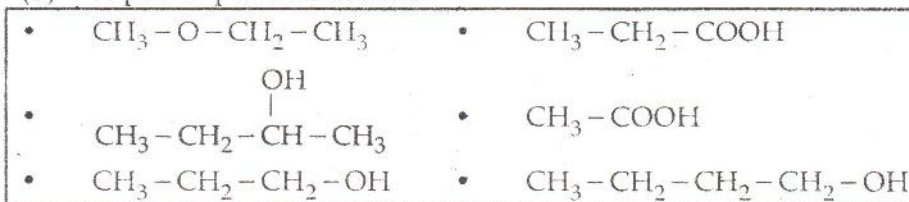
- (A) $[\text{Ne}] 3s^2 3p^5$ (B) $[\text{Ar}] 4s^1$
 (C) $[\text{Ar}] 3d^5 4s^2$ (D) $[\text{Ar}] 3d^{10} 4s^2 4p^5$
- (a) Which of these elements belongs to the same group ?
 (b) Which element has the lowest ionisation energy ?
 (c) Which is the element that always show +1 Oxidation State ?
 (d) Write down the subshell electronic Configuration of C^{4+} ion.

17. (a) Write down the structure of 2, 3-Dimethylbutane.
 (b) Write down the IUPAC name of its isomer with a single branch.
 (c) Write down the formula of Aldehyde functional group.
 (d) What is the IUPAC name of $\text{CH}_3-\text{CH}_2-\text{CH}_2-\text{C}\equiv\text{C}-\text{CH}_3$

18. Examine the figure of the Galvanic cell given below :



- (a) What are A and B electrodes ?
 (b) From which metal to which metal do the electrons flow ?
 (c) Which metal acts as the cathode ?
 (d) Write down the equation for the redox reaction taking place in the cell.
19. Answer the following questions by choosing the suitable ones given in the box below :
- (a) A pair of functional isomers.
 (b) Ether
 (c) Vinegar
 (d) A pair of position isomers.



20. (a) Complete the following equations :
- (i) $\text{CH}_3-\text{CH}_2-\text{CH}_3 + \text{Cl}_2 \rightarrow \underline{\hspace{2cm}} \text{(A)} + \text{HCl}$
 (ii) $\text{CH}_3-\text{CH}=\text{CH}_2 + \text{Cl}_2 \rightarrow \underline{\hspace{2cm}} \text{(B)}$
- (b) Which type of reaction is represented by equation (ii) ?
 (c) Write down the structural formula of Poly Vinyl Chloride (PVC).