

**SSLC PRE MODEL EXAMINATION FEBRUARY 2021**  
**CHEMISTRY**

Time-1½ Hours

Total Score-40

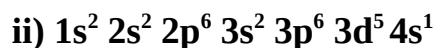
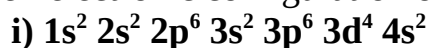
- .....
- First 20 minutes is the cool of time. You may use the time to read and plan your answers.
  - Answer the questions only after reading the instructions and questions thoroughly.
  - Eight questions are given in each section.
  - Answer each question by keeping the time.
  - Maximum mark for 1 to 32 question is 40

**(Answer the following questions. Each questions carries 1 score)**

1. Which of the following subshells is not possible in an atom? (1)  
(2p, 3f, 1s, 4d)
2. 1 mole = \_\_\_\_\_ molecules. (1)
3. 95.6% ethanol solution is known as \_\_\_\_\_. (1)
4. When molten sodium chloride is electrolysed, the gas liberated at the anode is \_\_\_\_\_. (1)
5. Which is the catalyst used in the industrial preparation of sulphuric acid? (1)
6. Find the relation and fill up suitably.  
Iron: Haematite                      Aluminium: \_\_\_\_\_ (1)
7. The maximum number of electrons which can accommodate in the d subshell. (1)  
(2, 10, 8, 14)
8. Which is the odd one among the following? (1)  
(C<sub>2</sub>H<sub>6</sub>, C<sub>3</sub>H<sub>8</sub>, C<sub>5</sub>H<sub>10</sub>, C<sub>6</sub>H<sub>14</sub>)

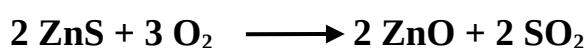
**(Answer the following questions. Each question carries two mark)**

**9.** The Sub shell electronic configuration of an element is given in two ways



Which among these is the correct electronic configuration? Give reason? **(2)**

**10.** The ores of Zinc are Zinc Blende and Calamine. The chemical equations relating to the extraction are given below



**a)** Which chemical equation represents the process of roasting? **(1)**

**b)** How Calcination differs from Roasting? **(1)**

**11.** Complete the table **(2)**

<b>Metals</b>	<b>Method of refining</b>	<b>Characteristics</b>
Lead	.....	Low melting point
Cadmium	Distillation	.....

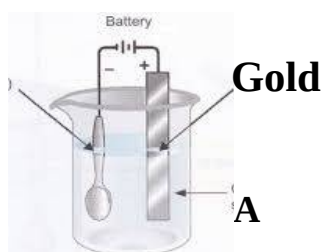
**12.** The molecular mass of  $\text{NH}_3$  (Ammonia) is 17.

**a)** Find the mass of 1GMM  $\text{NH}_3$  **(1)**

**b)** How many moles of molecules are there in 170 g of  $\text{NH}_3$ ? **(1)**

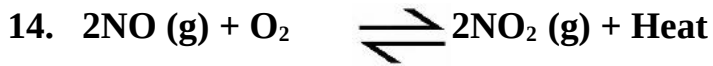
**13.** The given picture shows electroplating of gold on an iron spoon

**Iron spoon**



a) Which solution (A) is used as electrolyte? (1)

b) Write the Chemical equation of the reaction at Cathode? (1)



Identify the effect of following changes in forward reaction

a) Pressure is decreased. (1)

b) products are frequently removed from the system. (1)

15. Thick white fumes are formed when a glass rod dipped in concentrated Hydrochloric acid is shown inside a jar filled with Ammonia gas

a) Which compound is formed here? (1)

b) Complete the chemical equation



16. Identify the correct pairs (2)

**Vinyl chloride, Teflon, Natural rubber, PVC, Isoprene,  
Tetrafluoroethene**

**Example: Vinyl Chloride-PVC**

**(Answer the following questions. Each question carries 3 score)**

17. Outer subshell electronic configuration of certain elements are given:

**A-  $3s^2$**

**B-  $3d^14s^2$**

**C-  $2s^22p^5$**

**D-  $3s^23p^5$**

(a) Which among the following is 's' block element? (1)

(b) Write the subshell electronic configuration of **B** in complete form. (1)

(c) Find the group of the element **D**? (1)

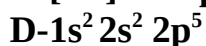
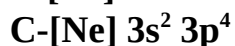
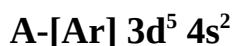
18. At constant temperature, the volume of a definite mass of a gas is inversely proportional to its pressure.

(a) Which gas law is related to this? (1)

(b) How can you write the mathematical equation? (1)

(c) The size of the air bubbles rising from the bottom of an aquarium increases. Give reason. (1)

19. Subshell electronic configuration of a few elements are given. (Symbols are not real)



(a) Which of the above elements belong to the same period? (1)

(b) Which among them has the highest electronegativity? (1)

(c) Write the formula of the compound formed by B & C (1)

20. (a) Which are the substances fed into the blast furnace along with haematite for the industrial production of iron? (1)

(b) Which is the reducing agent here? (1)

(c) Write the chemical reaction for the reduction of iron? (1)

21. From the following chemical reactions identify the properties of sulphuric acid.

(a) Adding con. H<sub>2</sub>SO<sub>4</sub> on cotton (1)

(b) During the preparation of Sulphur dioxide (SO<sub>2</sub>) gas, the gas is passed through con. H<sub>2</sub>SO<sub>4</sub> (1)

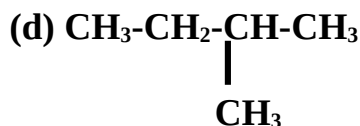
(c) Adding con. H<sub>2</sub>SO<sub>4</sub> on CuSO<sub>4</sub> crystals (1)

22. (a) CH<sub>3</sub>-CH<sub>2</sub>-O-CH<sub>2</sub>-CH<sub>3</sub>

(b) CH<sub>3</sub>-CH<sub>2</sub>-CH<sub>2</sub>-CH<sub>2</sub>-OH

(c) CH<sub>3</sub>-CH<sub>2</sub>-CH-CH<sub>3</sub>





- (i) Identify the isomer pairs from these compounds (1)
- (ii) To which type of isomerism do these compounds belong? (1)
- (iii) Write down the chain isomer of the compound 'd'. (1)

23. An organic compound A of molecular formula  $\text{C}_2\text{H}_4$  on reaction with Hydrogen gives another compound B of molecular formula  $\text{C}_2\text{H}_6$ . B on reaction with chlorine in the presence of sunlight gives C of molecular formula  $\text{C}_2\text{H}_5\text{Cl}$ .

- (a) Write the chemical equations for the conversion of (2)
- i. A to B
- ii. B to C
- (b) Name the type of reactions in i and ii (1)

24. Poisonous substances are added to ethanol to prevent its misuse as beverage

- (a) Name the product obtained (1)
- (b) Name the product obtained by mixing absolute alcohol and petrol (1)



Identify A and B

(Answer the following questions. Each question carries 4 score)

25. The subshell electronic configuration of some elements are given. (Symbols are not real) Answer the given questions.

- A- $1s^2 2s^2 2p^3$
- B- $1s^2 2s^2 2p^6 3s^2 3p^6$
- C- $1s^2 2s^2 2p^6 3s^2 3p^6 3d^5 4s^2$
- D- $1s^2 2s^2 2p^6 3s^2 3p^5$

- (a) Write the atomic number of the element A (1/2)

(b) Find the group, period and block of the element C (1½)

(c) Which element belongs to halogen family? (½)

(d) Write one of the characteristics of the element C (1)

(e) Which is the element that always shows zero valency? (½)

26. Complete the table. (4)

Element/ Compound	Molecular Mass	Mass in gram	GMM	Moles	Molecules
N <sub>2</sub>	28	----	5	5	5xN <sub>A</sub>
H <sub>2</sub>	----	20	10	----	10xN <sub>A</sub>
H <sub>2</sub> O	18	72	4	4	----

27. Some metals and solutions are given in the box.

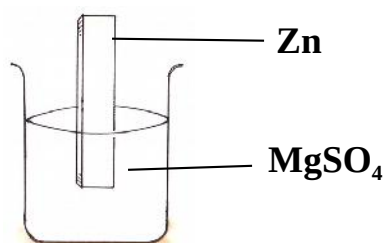
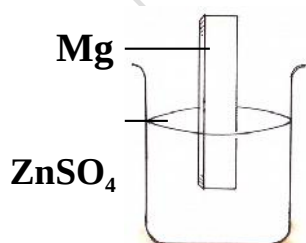
MgSO<sub>4</sub> solution, FeSO<sub>4</sub> solution, ZnSO<sub>4</sub> solution, CuSO<sub>4</sub> solution, Ag rod, Mg rod, Pb rod, Cu rod

(a) Select from the box the materials needed to construct a galvanic cell? (2)

(b) Which is the cathode of the cell constructed? (1)

(c) Write the redox reaction taking place in this cell? (1)

28. Analyse the given figures.



(a) In which of them displacement reaction will take place? (1)  
Write its reason?

(b) Write the oxidation and reduction reactions? (2)

(c) Write the redox reaction? (1)

29. Diagram representing the electrolysis of Alumina is given. Answer the given questions:



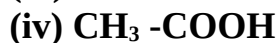
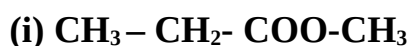
(a) Write the anode and cathode? (1)

(b) Alumina is mixed with cryolite. Write its reason? (2)

(c) Complete the equation.



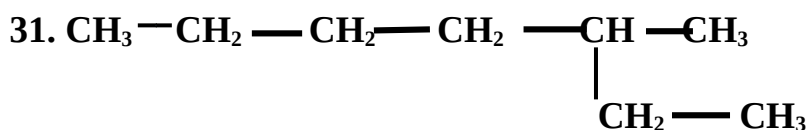
30. Some organic compounds are given below.



a) Which are the chemicals required for the preparation of ester? (1)

(a) Write the equation of chemical reaction? (2)

(b) Name the ester formed here? (1)



(a) What is the number of carbon atoms in the longest chain? (1)

(b) What is the position of the branch? (1)

(c) What is the name of the branch? (1)

(d) Write the IUPAC name of the compound? (1)

32. Match the following: (4)

Reactants	Products	Name of reaction
$\text{CH}_4 + \text{Cl}_2$	$-\text{[CH}_2\text{-CH}_2\text{]}_n$	Combustion
$n \text{CH}_2=\text{CH}_2$	$\text{CH}_4 + \text{CH}_2=\text{CH}_2$	Polymerisation
$\text{C}_2\text{H}_6 + \text{O}_2$	$\text{CH}_3\text{Cl} + \text{HCl}$	Thermal Cracking
$\text{CH}_3\text{CH}_2\text{CH}_3$	$\text{CO}_2 + \text{H}_2\text{O}$	Substitution