SAMPLE QUESTION PAPER I
CHEMISTRY
THIRUVANANTHAPURAM EDUCATIONAL DISTRICT
Standard X

Time : 1 1/2 hrs   Maximum Score : 40

PART - I

A. Answer any FOUR questions from 1 to 6. Each carries 1 score   (4 X 1 = 4)

1. The following are some of the sub-shells of atoms. Which of these sub-shells is not possible?

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

2. 1 mole = _____ molecules.

3. Identify the anode in Mg- Cu galvanic cell.

4. Which is the monomer used for coating on the inner surface of non-stick cookware?

5. Find the relation and fill up suitably.

    Liquified ammonia   :   Liquid ammonia
    Concentrated aqueous solution of ammonia : ....

6. Pick out the odd one.

    (C_2H_6 , C_3H_8 , C_5H_{10} , C_6H_{14})

B. Answer ALL questions from 7 to 9. Each carries 1 score   (3 X 1 = 3)

7. Which of the following is taken as the basic of relative atomic mass?
        (H=1 , C=12, C=14 , O=16)

8. The reducing agent used for the reduction of alumina in the manufacture of aluminium is ....

9. 5 - 8 % ethanoic acid (acetic acid) is known as ....

PART – II

A. Question 10 carries 2 score   (1 X 2 = 2)

10. Choose the correct statements related to chemical equilibrium among the following.

    a. Chemical equilibrium is dynamic at the molecular level.
    b. Forward and backward reactions does not take place at equilibrium.
    c. Chemical equilibrium is attained in open systems.
    d. At the equilibrium both the reactants and the products coexist..

B. Answer any ONE question from 11 to 12. Each carries 2 score   (1 X 2 = 2)

11. Find the number of molecules of 112L of ammonia at STP.

12. Soaps and detergents are cleansing agents.
     (a) Name the by product in the industrial production of soap.
     (b) How does excessive use of detergents destroy aquatic life?

PART – III

A. **Answer any THREE questions from 13 to 16. Each carries 3 score   (3 X 3 = 9)**

13. Outer subshell electronic configuration of an element is **$3d^5 4s^2$**.
    (a) What is the atomic number of the element ?
    (b) Write the subshell electronic configuration in complete form.
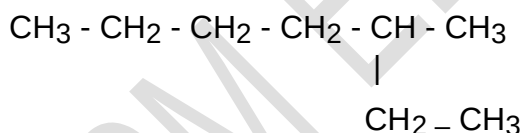   (c) Find the group and period of the element.

14. The pictorial representation of a Galvanic cell is given below.
                    (Hint ;Reactivity Ca>Mg> Zn>Fe>Cu)
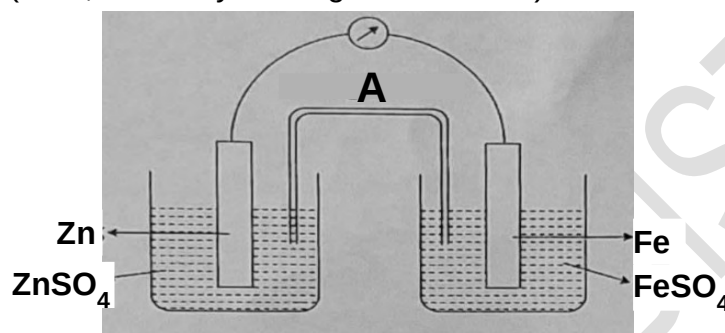
   (a) Identify **A** in the diagram
   (b)At which electrode does the oxidation reaction takes place?
   (c) Write the redox reaction taking place in the cell.

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

$$CH_3 - CH_2 - CH_2 - CH_2 - CH - CH_3$$
$$|$$
$$CH_2 - CH_3$$

   (a) Write the number of carbon atoms in the longest chain.
   (b) What is the position and name of the branch?
   (c) Write the IUPAC name of the compound?

16. Iron is industrially prepared in the blast furnace.
    (a) Which are the substances fed into the blast furnace along with haematite?
    (b) Which is the reducing agent here?
    (c) Write the chemical equation for the reduction of iron.

B. Question 17 carries 3 score   (1X3 = 3)

17. 1 mL of Sodium Sulphate solution is taken in a test tube, add two or three drops of
    Barium Chloride ($BaCl_2$) solution in it. A white precipitate is formed and it is not
    soluble in dilute Hydrochloric acid (HCl).
    (a) Write the chemical name of the white precipitate?
    (b) Which ions can be identified by this test?
    (c) Write the chemical equation for this reaction.

PART – IV

A. Answer any TWO questions from 18 to 20. Each carries 4 score   **(2 X 4 = 8)**

18. Equation showing the industrial preparation of ammonia is given below.

$$N_{2(g)} + 3H_{2(g)} \rightleftharpoons 2NH_{3(g)} + Heat$$
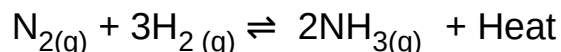
   a) Which is the endothermic reaction?
         (Forward reaction/Backward reaction)
   b) What will be the effect, if the ammonia produced is removed continuously
      from the system?
   c) What happens when the pressure of the system is increased?
   d) What is the effect of increasing temperature at equilibrium ?

19. 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)
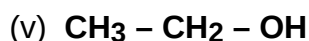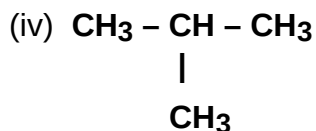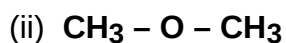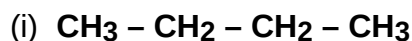
20. Complete the given table suitably.

Element/ Compound	Molecular mass	Mass in grams	Number of Moles	Number of molecules
H_2	2	6	......A......	$3 \times 6.022 \times 10^{23}$
CO_2	44	88	2	...........B......
N_2	14	........C......	10	$10 \times 6.022 \times 10^{23}$
H_2O	.......D.....	90	5	$5 \times 6.022 \times 10^{23}$

B . Answer any ONE question from 21 to 22. Each carries 4 score   **(1 X 4 = 4)**

21. Copper can be coated on an iron bangle by Electroplating.

   a) Which is the anode in this process ?
   b) Which solution is used as electrolyte ?
   c) Write the chemical equation for the reduction taking place at cathode.
   d) The electrolyte used to electroplate the iron bangle with silver is ....

22. Identify the pairs of isomers from the following compounds. Write the type of isomerism in each of these pairs.

   (i) **$CH_3 – CH_2 – CH_2 – CH_3$**

  (ii) **$CH_3 – O – CH_3$**

 (iii) **$CH_3 – CH_2 – CH_2 – OH$**

 (iv) **$CH_3 – CH – CH_3$**
          |
        CH_3
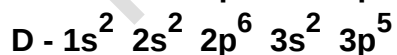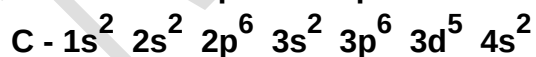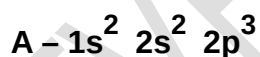
  (v) **$CH_3 – CH_2 – OH$**

PART – V

A. Answer any ONE question from 23 to 24. Each carries 5 score   (1X5 = 5)

23. Match the following suitably.

Reactants	Products	Name of reaction
CH_4 **+** Cl_2	-[CH_2 - CH_2]-n	Combustion
n $CH_2 = CH_2$	CH_4 + $CH_2 =CH_2$	Polymerisation
C_2H_6 **+** O_2	CH_3Cl + HCl	Thermal Cracking
$CH_3 — CH_2 — CH_3$	$CH_3 – CHCl – CH_2Cl$	Addition Reaction
$CH_3 — CH = CH_2$ **+** Cl_2	CO_2 + H_2O	Substitution Reaction

24. The subshell electronic configuration of some elements are given.
                (Symbols are not real)

    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) Which elements belong to same period ?

  (b) Find the group number of element A.

  (c) Which element belongs to halogen family?

  (d) Write one of the characteristic of the element C.

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

                 ****