SET A

A E 1006 Ch

SAMAGRA SHIKSHA KERALA

FIRST TERMINAL EVALUATION 2023-24

CHEMISTRY

Class : X

Score : 40

Time : 1 ½Hours

Instructions

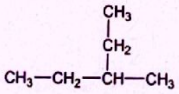
- First 15 minutes is given as cool offtime. This time is to be spent for reading and understanding the questions.
- Answer the questions according to the directions.
- Score and time are to be considered while answering.

Answer any 4 questions from 1 to 5. Each carries 1 Score. **(4 x 1 = 4)**

1. Liquefied ammonia is known as ..... (1)
2. The first member of alkyne family is (1)
   (CH, C_2H_2, C_3H_4, C_4H_6)
3. In Lanthanoids the last electron is filled in ..... subshell. (1)
   (3s, 4p, 5f, 4f)
4. Which mineral of iron is known as fool's gold ? (1)
5. Which is the metal connected to the positive terminal of the battery during the electroplating of an iron bangle with gold? (1)

Answer any 4 questions from 6 to 10. Each carries 2 Scores. **(4 x 2 = 8)**

6. There are 2 electrons in the 3d subshell of an element X (symbol is not real)
   a) Write the complete electronic configuration of X (1)
   b) Find out the group of X. (1)
7. Analyse the given structure.



   a) How many carbon atoms are there in the main chain of this compound? (1)
   b) Write the IUPAC name of this compound. (1)
8. a) Which are the ions present in molten sodium chloride? (1)
   b) Write the equation of reaction taking place at the cathode during electrolysis of molten sodium chloride. (1)
9. A Zn rod is immersed in $CuSO_4$ solution and kept for sometime.
   a) What change do you observe on the surface of Zn rod? (1)
   b) Why does the blue colour of $CuSO_4$ solution fade? (1)

10. a) Suggest a method to prepare hydrogen chloride (HCl) using sulphuric acid. (1)
b) Write the equation of this chemical reaction. (1)

Answer any 4 questions from 11 to 15. Each carries 3 scores **(4 x 3 = 12)**

11. Iron is manufactured using blast furnace
a) Which are the materials added to blast furnace during the industrial production of iron? (1)
b) Which is the compound acting as reducing agent in blast furnace? (1)
c) Write the equation of slag formation. (1)

12. a) What is the energy change taking place in an electrolytic cell? (1)
b) Write any two practical utilities of electrolysis. (2)

13. C_2H_4, C_3H_6, C_4H_8 etc. are the members of a hydrocarbon family.
a) To which hydrocarbon family do these compounds belong? (alkane, alkene, alkyne) (1)
b) Write any two reasons for including these compounds as members of a homologous series. (2)

14. Analyse the given chemical equation

$$C_{12}H_{22}O_{11} \xrightarrow{\text{Con. } H_2SO_4} 12C + 11H_2O$$

a) Which is the black substance formed? (1)
b) Which property of sulphuric acid is exhibited here? (1)
c) What is the common name of salts of sulphuric acid? (1)

15. a) What is the volume of 1 mol of any gas kept at STP? (1)
b) Find the volume of 64 g of Oxygen gas kept at STP. (2)

Answer any 4 questions from 16 to 20. Each carries 4 scores **(4 x 4 = 16)**

16. Aluminium is very useful in our daily life
a) Which is the ore of aluminium? (1)
b) Which is the solution used to concentrate aluminium ore? (1)
c) Why is cryolite added to alumina during its electrolysis ? (1)
d) Write the equation of reduction of aluminium ion. (1)

17. Two systems at equilibrium are given.
i) $N_2 + 3H_2 \rightleftharpoons 2NH_3 + \text{heat}$
ii) $2HI \rightleftharpoons H_2 + I_2$
a) In which of these reactions pressure has no effect? (1)
b) Why pressure has no effect in this reaction? (1)
c) How do the following factors affect the amount of product obtained in reaction (i)?
1) increase in the temperature. (1)
2) increase in the amount of nitrogen. (1)

18. Chemical equation of the redox reaction taking place in a galvanic cell is given.

$Zn + Cu^{2+} \longrightarrow Zn^{2+} + Cu$

a) Which is the anode in this galvanic cell? (1)

b) Write the equation of oxidation reaction taking place here? (1)

c) Write the direction of the electron flow. (1)

d) Which is the device used in a galvanic cell to assure the continuous flow of electricity? (1)

19. $ZnCO_3$ is an important ore of zinc.

a) Write the name of this ore. (1)

b) Write the name of the process by which $ZnCO_3$ is converted to ZnO. (1)

c) Which is the method used to refine Zn metal? (1)

d) Which property of Zinc is utilised in this refining process? (1)

20. a) Complete the following equation (1)

$$2NH_4Cl + \ldots\ldots\ldots \rightarrow CaCl_2 + 2\,H_2O + 2\,NH_3$$

b) A wet red litmus paper is shown over ammonia gas. Write your observation. (1)

c) Which is the drying agent used in the laboratory preparation of ammonia? (1)

d) Which is the product obtained when ammonia reacts with HCl? (1)

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