

MODELEVALUATION TEST 2021

CHEMISTRY

SET III

TIME : 1.30 Hrs

Max. Score : 40

INSTRUCTIONS

- 20 minutes is given as cool off time.
- Use cool-off time- to read the questions and plan your answers.
- Attempt the questions according to the instructions.
- Keep in mind the score and the time while answering the questions.
- The maximum score for questions from 1 to 32 will be 40.

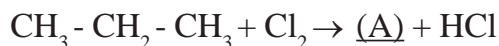
Questions 1- 8 Carries 1 score each.

(1x8=8)

1. Cryolite is the mineral of which metal?
2. In which period lanthanoids included?
3. Which is the monomer of teflon?
4. Which alloy steel is used for the manufacture of permanent magnets?
5. Which is the product obtained at anode when molten sodium chloride is subjected to electrolysis?
6. .... is the functional group present in alcohol.
7. Which is the catalyst used in the industrial preparation of Sulphuric acid?
8. Which law explains the relation between volume and number of molecules?

Questions 9-16 carries 2 scores each (2x8=16)

9. Complete the following equations. (2)



10. Take some sugar in a watch glass and add concentrated Sulphuric acid into it.

a) What change occurs? (1)

b) Which property of Sulphuric acid is shown here? (1)

11. Calculate the volume of 280g of  $\text{N}_2$  at STP. [Hint : N-14] (2)

12. Analyse the given table and answer the following questions. (2)

Metal	Refining Method
Tin	(A)
Mercury	(B)

13. Iron bangle is electroplated with Copper . Identify the anode and cathode. (2)

14.  $\text{N}_2 + 3\text{H}_2 \rightleftharpoons 2\text{NH}_3 + \text{heat}$  (2)

Write any two ways to increase the forward reaction.

15. Find the number of GMM in the given samples. [Hint : H-1, C-12]

a) 20g hydrogen (1)

b) 24g Carbon (1)

16. Name the product obtained at anode and cathode during the electrolysis of molten potassium chloride. (2)

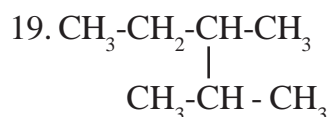
**Questions 17-24 carries 3 scores each (3x8 =24)**

17. Alumina is dissolved in Cryolite is subjected to electrolysis to get Aluminium.

a) What is the purpose of adding Cryolite in Alumina? (2)

b) Write the chemical equation of reaction taking place at the negative electrode. (1)

18. Find the oxidation state of Fe in  $\text{FeCl}_3$  and write the Subshell electronic configuration of Fe ion. [Hint : Fe-26]



a) Write the number of Carbon atoms in the main chain. (1)

b) Name the branch. (1)

c) Write the IUPAC name of the compound. (1)

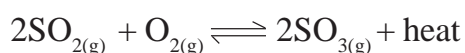
20. 440g Carbon dioxide (CO<sub>2</sub>) is taken. [Hint : Atomic mass C -12, O-16]

- a) Calculate the number of moles in it. (1)
- b) Calculate the number of molecule in it. (1)
- c) Calculate the volume of CO<sub>2</sub> in 440g at STP. (1)

21. Iron is industrially prepared in blast furnace.

- a) Which is the major gangue present in haematite? (1)
- b) Which substance acts as the reducing agent in blast furnace? (1)
- c) Write the chemical equation of the formation of slag. (1)

22. The chemical equation of a reversible reaction at equilibrium is given below.



- a) What is meant by equilibrium in a reversible chemical reaction. (1)
- b) Write the chemical equation of backward reaction. (1)
- c) What is the influence of pressure in the reaction? (1)

23. Keep two carbon rods immersed to copper Sulphate solution. Then pass electricity through the solution.

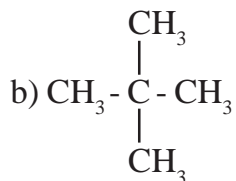
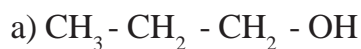
- i) At which electrode does colour change occur - anode/cathode. (1)
- ii) Is there any change in the blue colour of Coppersulphate solution. Give reason. (2)

24. Complete the following table by filling (a), (b) and (c). (1x3=3)

Metals	Refining Method
Cadmium	(a)
Lead	(b)
Copper	(c)

**Questions 25-32 carries 4 score each.**

25. i) Find out the isomeric pair from those given below. (2)



ii) Mention the type of isomerism in each pair. (2)

26. Complete the table

a) Write the values (a) and (b).

Pressure (P)	Volume (V)
1 atm	80L
(a) atm	20L
8 atm	(b) L

(1)

b) Identify the gas law and state it. (2)

27. Atomic number of manganese is 25.

a) Find the oxidation state of Mn in  $\text{MnCl}_2$  (1)

[ Hint : oxidation state of chlorine is - 1 ]

b) Write the subshell electronic configuration of Mn ion in  $\text{MnCl}_2$ . (1)

c) Write any two characteristics of the block in which this element belongs. (2)

28. Galvanic cell is an arrangement which changes chemical energy to electrical energy through redox reaction.

a) Construct Zn-Ag galvanic cell. (2)

b) Write the equations of chemical reaction taking place at anode and cathode. (2)

29. Match the following.

A	B
i) $\text{CH}_3 = \text{CH}_2 + \text{H}_2 \rightarrow \text{CH}_3 - \text{CH}_3$	Polymerisation
ii) $\text{CH}_3 - \text{CH}_2 - \text{CH}_3 \rightarrow \text{CH}_2 = \text{CH}_2 + \text{CH}_4$	Substitution reaction
iii) $\text{CH}_4 + \text{Cl}_2 \rightarrow \text{CH}_3\text{Cl} + \text{HCl}$	Addition reaction
iv) $n\text{CH}_2 = \text{CH}_2 \rightarrow \{ \text{CH}_2 - \text{CH}_2 \}_n$	Thermal Cracking

(4)

30. Explain the following with examples.

a) Reversible chemical reactions. (2)

b) Irreversible chemical reactions. (2)

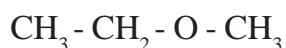
31. The last electron of an atom enters the 3d subshell and the Subshell electronic configuration recorded as  $3d^6$

a) How many electrons are there in the outermost shell? (1)

b) Write the Subshell electronic configuration of this element. (1)

c) Write any two characteristics of the block to which this element belongs. (2)

32. The structured formula of an organic compound is given below.



a) Identify the functional group present in this compound. (1)

b) What are the compounds with the given functional group commonly called? (1)

c) Write down the structural formula of its functional isomer and its IUPAC name. (2)