

Class : 11Register
Number**FIRST MID TERM TEST - 2024**

Time Allowed : 1.30 Hours]

CHEMISTRY

[Max. Marks : 50

PART - I

I. Answer all the questions.

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10x1=10

- The equivalent mass of a trivalent metal element is 9 g eq⁻¹ the molar mass of its anhydrous oxide is -----
a) 102 g b) 27 g c) 270 g d) 78 g
- Which of the following is not a thermodynamic function?
a) Internal energy b) Enthalpy c) Entropy d) Frictional energy
- The oxidation number of Cr in Cr₂O₇²⁻
a) +6 b) +7 c) +4 d) +3
- Splitting of spectral lines in an electric field is called -----
a) Zeeman effect b) Shielding effect c) Compton effect d) Stark effect
- The maximum number of electrons in a sub shell is given by the expression
a) 2n² b) 2l + 1 c) 4l + 2 d) 4l + 1
- The total number of orbitals associated with the principal quantum number n = 3 is -----
a) 9 b) 10 c) 15 d) 16
- 25g of each of the following gases are taken at 27°C and 600 mm Hg pressure. Which of these will have the least volume?
a) HBr b) HCl c) HF d) HI
- Consider the following statements
i) Atmospheric pressure is less at the top of a mountain than at sea level
ii) Gases are much more compressible than solids or liquids
iii) When the atmospheric pressure increases the height of the mercury column rises
Select the correct statement
a) I and II b) II and III c) I and III d) I, II and III
- Which of the following is optically active?
a) 3 - Chloropentane b) 2- Chloro propane c) Meso - tartaric acid d) Glucose
- Which one of the following names does not fit a real name?
a) 3- Methyl -3- hexanol b) 4-Methyl -3- hexanone
c) 3 - Methyl -3-hexanone d) 2- Methyl cyclo hexanone.

PART - II

II. Answer any 5 questions. Question number 17 is compulsory.

5X2=10

- Define mole.
- State the third law of thermodynamics
- State Pauli's exclusion principle

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14. Identify the functional group in the following compounds.
 a) Ethoxy ethane b) Pentan - 3 - one
15. What are spontaneous reactions? What are the conditions for the spontaneity of a process?
16. Which ion has the stable electronic configuration? Ni^{2+} or Fe^{3+} . Why?
17. Find the empirical formula?
 i) $C_6H_{10}N_4O_2$ ii) C_6H_6

PART - III

III. Answer any 5 questions. Question number 24 is compulsory.

5X3=15

18. Derive de Broglie equation
19. Difference between effusion and diffusion.
20. Write Aufbau's principle.
21. Write note on uncertainty principle.
22. Give the general characteristics of organic compounds?
23. List the characteristics of Gibbs free energy.
24. Give the IUPAC names of
 i) $(CH_3)_2CH-CH(CH_3)-CH_3$
 ii) CH_3CHO
 iii) CH_3-O-CH_3

PART - IV

IV. Answer all the questions.

3X5=15

25. a) A Compound on analysis gave the following percentage composition C = 40%, H = 6.6%, O = 53.4%. Determine the empirical formula of the compound.
 (OR)
- b) Explain the postulates & limitations of Bohr atom model.
26. a) i) Why do astronauts have to wear protective suits when they are on the surface of moon? (2)
 ii) What are ideal gases? In what way real gases differ from ideal gases. (2)
 (OR)
- b) State the various statements of second law of thermodynamics.
27. a) How will you classify organic compounds based on structure?
 (OR)
- b) i) Briefly explain the geometrical isomerism in but - 2 - ene. (2)
 ii) 0.30 g of a substance gives 0.88 g of carbon dioxide and 0.54 g of water calculate the percentage of carbon and hydrogen in it. (3)

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