

Standard XI CHEMISTRY

Time: 1.30 hrs.

Part – I

Marks: 50

10 x 1 = 10

I. Choose the correct answer:

1. Relative molecular mass of Hydrogen molecule is
a) 1.008U b) 18U c) 2.016U d) 16U
2. Compressibility factor 'Z' for Ideal gas at all temperature and pressure is equal to
a) Zero b) Two c) one d) Three
3. Lassaigne's test for the detection of nitrogen fails in
a) $C_6H_5-NH-NH_2 \cdot HCl$ b) $H_2N-CO-NH \cdot NH_2 \cdot HCl$
c) $NH_2-NH_2 \cdot HCl$ d) $C_6H_5 CONH_2$
4. If temperature and volume of an ideal gas is increased to twice its values, the initial pressure P becomes
a) 4P b) 2P c) P d) 3P
5. Oxidation number of Oxygen in KO_2 :
a) +2 b) -2 c) 0 d) $-\frac{1}{2}$
6. The equivalent mass of potassium permanganate in alkaline medium is
($MnO_4^- + 2H_2O + 3e^- \rightarrow MnO_2 + 4OH^-$)
a) 31.6 b) 52.7 c) 79 d) None of these
7. Which of following method used to determines amount of sulphur in organic compound?
a) Kjeldahl method b) Nitro meter c) Dumas method d) Carius method
8. Maximum deviation from ideal gas is expected from
a) $CH_{4(g)}$ b) $NH_{3(g)}$ c) $H_{2(g)}$ d) $N_{2(g)}$
9. Example for metamerism:
a) Isopentane & pentane b) Pent-1-ene & pent-2-ene
c) Propanal & propanone d) Methoxypropane & ethoxyethane
10. Select the molecule which has only one π bond
a) $CH_3-CH=CH-CH_3$ b) $CH_3-CH=CH-CHO$
c) $CH_3CH=CH-COOH$ d) All of these

Part - II

II. Answer any 5 questions. (Q.No.18 is compulsory)

5 x 2 = 10

11. What is meant by limiting reagents?
12. What do you understand by the term Mole ?
13. State Dalton Law of partial pressures.
14. What is Inversion temperature?
15. Define Avogadro hypothesis.

16. Distinguish between diffusion and effusion.
17. Give the general characteristics of organic compounds.
18. Give the structure for the following compound:
 - a) 3-methylpentane b) 2-methyl-2-ol

Part - III**III. Answer any 5 questions. (Q.No.26 is compulsory)****5 x 3 = 15**

19. Distinguish between oxidation and reduction.
20. Calculate the molar mass of the following compounds.
 - i) $[\text{CO}(\text{NH}_2)_2]$ ii) $[\text{CH}_3\text{COCH}_3]$ iii) $[\text{H}_3\text{BO}_3]$
21. What is Boyle's temperature? What happens to real gases above and below the Boyle's temperature?
22. In what way real gases differ from ideal gases.
23. Give the principle involved in the estimation of halogen in an organic compound by carius method.
24. Write a note on homologous series.
25. Explain paper chromatography.
26. Calculate the oxidation number of underlined elements.
 - a) $\underline{\text{C}}\text{O}_2$ b) $\text{H}_2\underline{\text{S}}\text{O}_4$ c) $\text{K}\underline{\text{Cl}}\text{O}_3$

Part - IV**IV. Answer all the questions.****3 x 5 = 15**

27. a) Calculate the empirical and molecular formula of a compound containing 76.6% carbon, 6.38% hydrogen and rest oxygen its vapour density is 47.

(OR)

- b) i) Define basicity. Find the basicity of ortho-phosphoric acid
 - ii) What is the empirical formula of the following?
 - a) Glucose ($\text{C}_6\text{H}_{12}\text{O}_6$) b) Acetic acid (CH_3COOH)
 28. a) i) Derive the ideal gas equation
 - ii) What is Compressibility factor?
- (OR)**
- b) Deduce the relationship between critical constants and Vanderwaal's constants
 29. a) i) Briefly explain geometrical isomerism in alkene by considering 2-butene as an example
 - ii) Explain various types of constitutional isomerism (structural isomerism) in organic compounds

(OR)

- b) Describe the classification of organic compounds based on their structure.

Stand- 11

CHEMISTRY

Time: 1.30

Part A

Choose the correct answer:

- The equivalent mass of a trivalent metal element is 9 g eq^{-1} the molar mass of its anhydrous oxide is
a) 102g b) 27g c) 270g d) 78g
- 7.5g of a gas occupies a volume of 5.6 litres at 0°C and 1 atm pressure. The gas is
a) NO b) N_2O c) CO d) CO_2
- Which one of the following is used as a standard for atomic mass?
a) ${}^{12}_6\text{C}$ b) ${}^{12}_7\text{C}$ c) ${}^{13}_6\text{C}$ d) ${}^{14}_6\text{C}$
- Splitting of spectral lines in an electric field is called
a) Zeeman effect b) Shielding effect
c) Compton effect d) Stark effect
- The total number of orbitals associated with the principal quantum number $n=3$ is
a) 9 b) 8 c) 5 d) 7
- The value of the gas constant R is
a) $0.082 \text{ dm}^3 \text{ atm}$ b) $0.987 \text{ cal mol}^{-1} \text{ K}^{-1}$
c) $8.3 \text{ J mol}^{-1} \text{ K}^{-1}$ d) $8 \text{ erg mol}^{-1} \text{ K}^{-1}$
- What is the density of N_2 gas at 227°C and 5.00 atm pressure?
a) 1.40 g/L b) 2.81 g/L c) 3.41 g/L d) 0.29 g/L
- The IUPAC name of the compound $\text{CH}_3-\text{CH}=\text{C}-\text{CH}_2-\text{CH}_3$ is

$\begin{array}{c} | \\ \text{CH}_2-\text{CH}_2-\text{CH}_3 \end{array}$

a) 3-Ethyl-2-hexene b) 3-propyl-3-hexene
c) 4-Ethyl-4-hexene d) 3-propyl-2-hexene
- Nitrogen detection in an organic compound is carried out by Lassaigne's test. The blue colour formed is due to the formation of
a) $\text{Fe}_3[\text{Fe}(\text{CN})_6]_2$ b) $\text{Fe}_4[\text{Fe}(\text{CN})_6]_3$
c) $\text{Fe}_4[\text{Fe}(\text{CN})_6]_2$ d) $\text{Fe}_3[\text{Fe}(\text{CN})_6]_3$
- Ortho and Para-nitro phenol can be separated by
a) azeotropic distillation b) destructive distillation
c) steam distillation d) cannot be separated

Part - B

Answer the following questions. Q No.

Q1) Define: Equivalent mass

Q2) State Dalton's exclusion

Q3) Define: Dalton's

- 14) What is Functional group?
- 15) Can a Vander Waals gas with $a = 0$ be liquefied? Explain.
- 16) What is sublimation? Give example.
- 17) Give the electronic configuration of Mn^{2+} and Cr^{3+} .

Part - C**III. Answer any five questions. Q.No. 24 is compulsory:****5×3=15**

- 18) What do you understand by the term oxidation number?
- 19) What are the n and l values for $3p_x$ and $4d_{x^2-y^2}$ electron?
- 20) Derive ideal gas equation.
- 21) Give the general characteristics of organic compounds.
- 22) State Boyle's law.
- 23) What is optical isomerism? With example.
- 24) How many moles of ethane is required to produce 44g of CO_2 after combustion?

Part - D**IV. Answer all the questions:****3×5=15**

- 25) a) Derive the values of critical constants in terms of Vander Waals constant.

(OR)

- b) i) What is Limiting reagents?
- ii) Distinguish between oxidation and reduction.

- 26) a) Describe the classification of organic compounds based on their structure.

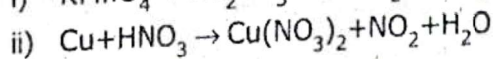
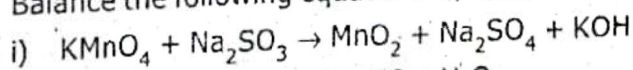
(OR)

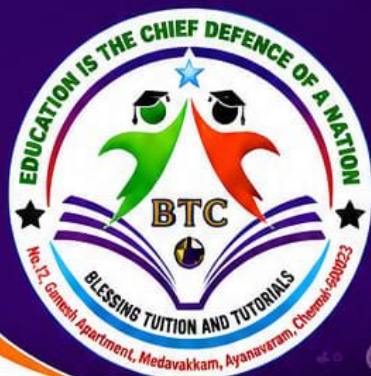
- b) i) Determine the values of all the four quantum numbers of the 8th electron in O - atom and 15th electron in Cr atom and the last electron in chromium.
- ii) Describe the Aufbau principle.

- 27) a) Explain various types of structural isomerism in organic compounds.

(OR)

- b) Balance the following equations by oxidation number method.





11TH STD CHEMISTRY

1ST MID TERM IMPORTANT QUESTION

2026 & 27



UNIT – 1 Basic Concepts of Chemistry and Chemical Calculations

2 MARKS

26, 27, 28, 29, 30, 31, 37, 38, 40

Example – Empirical Formula (1,2)

5 MARKS

42, 43

- 1.5.1 - Equivalent Mass Calculation
- 1.7.2 - Limiting Reagents
- 1.8.1 - oxidation number Calculation

UNIT – 2 Quantum Mechanical Model of Atom



2 MARKS

26, 27, 32, 39

- 2.1.1 – Bohr atom model
- 2.1.2 – Limitation of Bohr's atom model

5 MARKS

31, 33, 40

- 2.2.1 – de Broglie eq
- 2.3 – Heisenberg's uncertainty principle
- 2.5 – Quantum numbers and types

UNIT – 6 Gaseous States



2 MARKS

26, 27, 28, 29, 30, 32*(a), 34, 37, 38

- Charles Law, Boyle's Law, Gay-Lussac's Law, Avogadro Law, Dalton's law, Graham's Law

5 MARKS

40, 41

- 6.3 - Ideal gas equation

UNIT – 7 Thermodynamics



2 MARKS

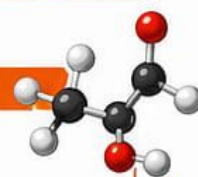
26, 27, 29, 30, 32, 33, 34, 36, 37, 38, 39, 42

- Relation between C_p and C_v

5 MARKS

43, 45, 46, 47, 50, 51, 52

UNIT – 11 Fundamentals Of Organic Chemistry



2 MARKS

31, 33, 35, 42, 43, 46

- 38 – IUPAC (i to vi)
- 39 – (i to x)

5 MARKS

32, 40, 41, 45



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