

SAINIK SCHOOL, CHITTORGARH (RAJ)

CHEMISTRY

AUTUMN VACATION HOME WORK, CLASS – XI (2018-19)

1. What is the importance of compressibility factor? Explain with suitable example.
2. Write the conditions of T and P when the gases deviate most from their ideal behavior. Explain.
3. What correction is made by Vander Waals in the gas equation and why?
4. Why are liquids like ether and acetone kept in cool and dry places?
5. Boiling point of Water is higher than that of Hydrogen sulphide. Why?
6. Using the ideal gas equation show that at a given T the density of a given gas is proportional to its P.
7. At 0°C the density of a given oxide of a gas at 2 bar P is same as that of Nitrogen at 5 bar. What is the molecular mass of the oxide?
8. What will be the pressure of a gaseous mixture when 0.5 L of H₂ at 0.8 bar and 2 L of O₂ at 0.7 bar are introduced into a 1 L vessel at 27°C?
9. Calculate the volume occupied by 8.8 g of CO₂ at 31.1°C and 1 bar P. (R = 0.083 bar L K⁻¹mol⁻¹)
10. Critical T of CO₂ and CH₄ are 31.1°C and -81.9°C respectively. Which of these has stronger intermolecular forces and why?
11. If 1 g each of the following gases are taken at STP, which of the gases will occupy-
(a) Greatest volume (b) Smallest volume. Gases are CO₂, H₂O, CH₄ and NO.
12. According to kinetic theory of gases “There is no force of attraction between the molecules of a gas. How far this statement is correct? Explain giving reason.
13. The value of Z = 1 for an ideal gas. What will be the value of Z for a real gas above Boyles T? Explain.
14. T_c for CO₂ is 30.98°C and P_c is 73 atm. Can CO₂ be liquefied at 32°C and 80 atm P? Explain.
15. 2.9 g of a gas at 95°C occupied the same volume as 0.184 g of H₂ at 17°C at the same P. What is the molecular mass of the gas?
16. Give the suffix/ prefix used and structures of functional groups generally used in organic compounds.
17. Give five examples each of all functional groups.
18. What are called isomers? Give the types of structural isomers of organic compounds.
19. What type of hybridization is found in single, double and triple bonded ‘C’ atoms? Why?
20. Make an investigatory project on a subject related to Chemistry from your surroundings. The layout of project will be as follows:- Aim/ Object, Introduction, Explanation about the project, Suggestions, Photographs or Diagrams, References used. (Part of Annual Practical Evaluation – 4 marks)
(A file to be prepared separately, can take reference from internet, magazines or any script available)

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AUTUMN VACATION HOME WORK, CLASS – XII (2018-19)

1. Complete the practical copy written work for the following:
 - (i) Redox titration between Ferrous Ammonium Sulphate and KMnO₄ in acidic medium
 - (ii) Salt analysis: Pb⁺⁺, NO₃⁻, Fe⁺⁺⁺, SO₄⁻, NH₄⁺, Cu⁺⁺, PO₄^{- -}, Cl⁻, Al⁺⁺⁺, Ba⁺⁺, Mg⁺⁺, CO₃^{- -}, Br⁻, I⁻
 - (iii) Write the tests for functional groups: -OH, -CHO, -COOH, Phenol
2. To complete an Investigatory project and its write up in a separate file. Object may be chosen from their surroundings or a project of general interest.