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SJM

MONTHLY TEST - JUNE - 2025

11 - Std

CHEMISTRY

Time : 1.30 Hrs. MARKS : 40

I **Choose the correct answer.** 10 X 1 = 10

1. 40 ml of methane is completely burnt using 80 ml of Oxygen at room temperature. The volume of gas left after cooling to room temperature is ..... .
   a) 40 ml CO_2 gas b) 40 ml CO_2 gas and 80 ml H_2O gas
   b) 60 ml CO_2 gas and 60 ml H_2O gas d) 120 ml CO_2 gas
2. Carbon forms two oxides, namely carbon monoxide and carbon di oxide. The equivalent mass of which element remains constant?
   a) Carbon b) Oxygen c) both Carbon and Oxygen d) neither Carbon nor Oxygen
3. The number of water molecules in a drop of water weighing 0.018g is ..... .
   a) 6.022×10^{26} b) 6.22×10^{23} c) 6.022×10^{20} d) 9.9×10^{22}
4. Which one of the following is used as a standard for atomic mass
   a) ${}_6C^{12}$ b) ${}_7C^{12}$ c) ${}_6C^{13}$ d) ${}_6C^{14}$
5. Gram equivalent mass of H_2SO_4 is ..... . a) 56 b) 49 c) 94 d) 40
6. When an ideal gas undergoes unrestrained exponsion, no cooling occurs because the molecules
   a) are above inversion temperature b) exert no attractive forces on each other
   c) do work equal to the loss in kinetic energy d) Collide without loss of energy.
7. The value of the gas constant R is ..... .
   a) 0.082 dm^3 atm b) 0.987 Cal $mol^{-1} K^{-1}$ c) 8.3J $mol^{-1} K^{-1}$ d) 8 erg $mol^{-1} K^{-1}$
8. Use of hot air balloon in sports at meteoro logical observations is an application of ..... .
   a) Boyle's law b) Newton's law c) Kelvin's law d) Brown's law
9. Assertion : Critical temperature of CO_2 is 304K, it can be liquefied above 304K.
   Reason : For a given mass of gas, volume is to directly proportional to pressure at constant temperature.
   a) both assertion and reason are true and reason is the correct explanation of assertion
   b) both assertion and reason are true but reason is not the correct explanation of assertion
   c) assertion is true but reason is false d) both assertion and reason are false
10. The compressibility factor Z for real gases is ..... .
    a) $Z = \frac{nRT}{P}$ b) $Z = \frac{PV}{T}$ c) $Z = \frac{V\ real}{V\ ideal}$ d) none of these

II **Answer any three. (Q.No. 15 compulsory)** 3 x 2 = 6

11. Define relative atomic mass.
12. Define mole.
13. State Boyle's law.
14. Can a Vanderwaals gas with a= 0 be liquefied?
15. Calculate the molar mass for the following. a) urea $[CO(NH_2)_2]$ b) Boric acid $[H_3BO_3]$

III **Answer any three. (Q.No. 20 compulsory)** 3 x 3 = 9

16. Distinguish between oxidation and reduction.
17. What do you understand by the term oxidation number?
18. State Dalton's law of partial pressures.
19. What is Joule Thomsons effect?
20. Aerated water bottles are kept under water during summer. Why?

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

21. a) i) What is the difference between molecular mass and molar mass? Calculate molecular mass and molar mass for carbon monoxide. ii) Define equivalent mass.
    (OR) Calculate the empirical formula of the organic compound present in vinegar has 40% Carbon, 6.6% hydrogen and 53.4% Oxygen.
22. a) i) What is limiting reagent? ii) What is the empirical formula of the following?
    b) Fructose $(C_6H_{12}O_6)$ found in honey. c) Caffeine $(C_8H_{10}N_4O_2)$ a substance found in tea and coffee.
    (OR) b) i) What is Avogadro's hypothesis? ii) What is inversion temperature?
23. a) i) Distinguish between diffusion and effusion.
    ii) What are the different methods used for liquefaction of gases? ***(OR)***
    b) i) Derive ideal gas equation. ii) State Charle's law.

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