STD: XI **ONE MARK TEST – 1** **Lesson: 1 & 6**
Marks: 30 / Time: 45 Min. **CHEMISTRY**
Choose the correct answer.

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
   c) 60 ml CO_2 gas and 60 ml H_2O gas d) 120 ml CO_2 gas
2. The relative atomic masses of hydrogen, oxygen, and carbon are 1.008 u, 16 u, and 12 u respectively. The relative molecular mass of glucose ($C_6H_{12}O_6$) is
   a) 170.096 u b) 189.096 u c) 180.096 u d) 190.086 u
3. The oxidation number of sulphur on H_2SO_3 is
   a) -2 b) +4 c) +2 d) +6
4. When 6.3 g of sodium bicarbonate is added to 30 g of acetic acid solution, the residual solution is found to weigh 33 g. The number of moles of carbon dioxide released in the reaction is
   a) 3 b) 0.75 c) 0.075 d) 0.3
5. $H_2O_2 \rightarrow 2\,H_2O + O_2$ is a
   a) Displacement reaction b) Combination reaction
   c) Decomposition reaction d) Disproportionate reaction
6. 7.5 g 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
7. Which of the following is/are true with respect to carbon -12.
   a) relative atomic mass is 12 u
   b) oxidation number of carbon is +4 in all its compounds
   c) I mole of carbon -12 contain 6.022×10^{22} carbon atoms
   d) all of these
8. The number of moles of hydrogen required to produce 20 moles of ammonia is
   a) 10 b) 15 c) 30 d) 20
9. Carbon forms two oxides, namely carbon monoxide and carbon dioxide. The equivalent mass of which element remains constant?
   a) Carbon b) oxygen c) both carbon and oxygen d) neither carbon or oxygen
10. The correct order of electron releasing tendency of the following elements is
    a) Zn > Cu > Ag b) Cu > Zn > Ag c) Ag > Zn > Cu d) Ag > Cu > Zn
11. The gases which deviate from ideal behaviour at
    a) low temperature and high pressure b) high temperature and low pressure
    c) low temperature and low pressure d) high temperature and high pressure
12. If Avogadro number were changed from 6.022×10^{23} to 6.022×10^{20}, this would change
    a) the ratio of chemical species to each other in a balanced equation
    b) the ratio of elements to each other in a compound
    c) the definition of mass in units of grams
    d) the mass of one mole of carbon
13. Which one of the following is used as a standard for atomic mass
    a) ${}_6C^{12}$ b) ${}_7C^{12}$ c) ${}_6C^{13}$ d) ${}_6C^{14}$
14. Choose the disproportionation reaction among the following redox reactions.
    a) $3Mg\,(s) + N_2\,(g) \rightarrow Mg_3N_2\,(s)$ b) $P_4\,(s) + 3NaOH + 3H_2O \rightarrow PH_3\,(g) + 3NaH_2PO_2\,(aq)$
    c) $Cl_2\,(g) + 2KI\,(aq) \rightarrow 2KCl\,(aq) + I_2$ d) $Cr_2O_3\,(s) + 2Al\,(s) \rightarrow Al_2O_3\,(s) + 2Cr(s)$
15. At identical temperature and pressure, the rate of diffusion of hydrogen gas is $3\sqrt{3}$ times that of a hydrocarbon having molecular formula C_nH_{2n-2}. What is the value of n?
    a) 8 b) 4 c) 3 d) 1

16. Chlorine consists of two naturally occurring isotopes 17Cl35 and 17Cl37 in the ratio 77 : 23. The average relative atomic mass of chlorine is
a) 36.45 u b) 35.56 u c) 35.46 u d) 35.65 u

17. The value of universal gas constant depends upon
a) Temperature of the gas b) Volume of the gas
c) Number of moles of the gas d) units of Pressure and volume

18. The process in which agas escapes from a container through a very small hole is called
a) diffusion b) effusion c) occlusion d) dilution

19. The molecular formula of acetic acid is $C_2H_4O_2$,its empirical formula is
a) $C_2H_4O_2$ b) C_2H_2O c) CH_2O_2 d) CH_2O

20. Four gases P, Q, R and S have almost same values of 'b' but their 'a' value (a, b are Vander Waals Constants) are in the order Q < R < S < P. At a particular temperature, among the four gases the most easily liquefiable one is
a) P b) Q c) R d) S

21. The precise value of temperature at which the volume of the gas becomes zero is
a) -273.15 °C b) -273 °C c) -298.15°C d) -298 °C

22. Rate of diffusion of a gas is
a) directly proportional to its density
b) directly proportional to its molecular weight
c) directly proportional to its square root of its molecular weight
d) inversely proportional to the square root of its molecular weight

23. The units of Vander Waals constants 'b' and 'a' respectively
a) mol L^{-1} and L atm^2 mol^{-1} b) mol L and L atm mol^2
c) mol^{-1} L and L^2 atm mol^{-1} d) none of these

24. The compressibility factor, z for an ideal gas is _____.
a) zero b) less than one c) greater than one d) equal to one

25. The value of gas constant, R, in terms of JK^{-1} mol^{-1} is
a) 8.314 b) 4.184 c) 0.0821 d) 1.987

26. Compressibility factor for CO_2 at 400 K and 71.0 bar is 0.8697. The molar volume of CO_2 under these conditions is
a) 22.04 dm^3 b) 2.24 dm^3 c) 0.41 dm^3 d) 19.5dm^3

27. The temperature at which a real gas obeys ideal gas law over an appreciable range of pressure is called Temperature
a) inversion b) ideal c) Boyle d) reversible

28. 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

29. The unit of Van der Waals constant 'b' is
a) lit mol^{-1} b) lit mol c) atm lit mol^{-1} d) atm lit^{-1} mol^{-2}

30. In a closed room of 1000 m^3 a perfume bottle is opened up. The room develops a smell. This is due to which property of gases?
a) Viscosity b) Density c) Diffusion d) None