ASSIGNMENT – 1

1) 1.84 g of a mixture of $CaCO_3$ and $MgCO_3$ is strongly heated till no further loss of mass takes place. The residue weighs 0.96g . Calculate the percentage composition of the mixture.
2) If 30 ml of H_2 and 20 ml of O_2 react to form water , what is left at the end of the reaction ?
3) 3.28 g of a sample of pure copper when heated in presence of oxygen forms black copper oxide which weighs 3.92 g . What percent of copper remains unoxidized ?
4) How many moles of lead(II) chloride will be formed from a reaction between 9.65 g of PbO and 3.2 g of HCl ?
5) Calculate the molarity of solution of 40 percent HCl having density 1.20 g/ml .
6) Calculate the molarity and normality of solution formed from 100ml of o.2N H_2SO_4 with 50ml of O.1N HCl.
7) Calculate the oxalic acid molecules in 100 ml of 0.02N oxalic acid solution.
8) Calculate total number of electrons in 1.4 g of nitrogen gas .
9) How many atoms and molecules of phosphorous are present in 124 g of P_4 ?
10) Calculate the mass of 112 cm^3 of hydrogen at STP .

ASSIGNMENT - 2

1) 103 ml of carbon dioxide were collected at 27 degree centrigrade and 763 mm pressure.What will be its volume if pressure is changed to 721mm at same temperature ?
2) An open vessel contains 200 mg of air at 17 degree centrgrade . What weight percent of air would be expelled if vessel is heated to 117 degree centrigrade ?
3) 8 g of methane is placed in 5 L container at 27 degree centigrade . Find Boyle constant.
4) A sealed tube which can withstand a pressure of 3 atmosphere is filled with air at 27 degree centigrade and 760 mm pressure . Find temperature above which it will burst ?
5) Density og a gas is 3.80 g/l at STP . Calculate its density at 27 degree centigrade and 700 torr pressure .
6) If volume occupied by CO_2 molecules is negligible then calculate pressure exerted by one mole of carbon dioxide at 273 K , a = 3.592 $atm/l/mol^2$.
7) A 2 L flask contains 1.6 g of methane and 0.5 g of hydrogen at 27 degree centigrade . Calculate partial pressure of each gas in the mixture and calculate total pressure .
8) At what temperature centigrade will volume of gas at 0 degree centigrade doubles itself , pressure remaining constant ?
9) 500 ml of nitrogen at 27 degree centigrade cooled to -5 degree centigrade at same pressure , calculate new volume.
10) Calculate temperature at which 28 g of nitrogen will occupy volume of 10 L at 2.46 atmosphere.