FE[A]

B. R. Harne College of Engineering and Technology

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F.E. Div. A | **Date : 28/02/15**

Subject: Applied Chemistry- II | **UNIT TEST- I** | **MARKS: 15**

At. Wt. of C = 12, H=1, N=14, S=32, O= 16, Mg= 24, Na= 23, Cl= 35.5, Ba=137.

Q.1} Attempt ANY Two of the following. **10**

1. A gaseous fuel has the following composition volume: H_2=35%, CH_4=45%, C_2H_6=6%, CO=12%, and remaining N_2. Calculate the minimum amount of air required a 27^0C and 760 mm Hg pressure for the complete combustion of $1m^3$ of the fuel.
2. Explain the Proximate Analysis of Coal.
3. 1.56 gm or the coal was Kjeldahlized and NH_3 gas thus evolved was absorbed in 50.0 ml of 0.1N H_2SO_4. After absorption the excess acid required 6.25ml of 0.1N NaOH for exact neutralization. 2.60 gm of the coal sample in a qualitative analysis gave 0.755gm of $BaSO_4$. Calculate the % of N and S in the coal sample.
4. 2.5gm of air dried coal sample was taken in a silica crucible, after heating it in an electric oven at 105-110^0C for 1 hrs, the residue was weighed 2.410gm, the residue was heated in a silica crucible covered with vented lid. At a temp. 950^0C for exactly 7 min. after cooling the wt. of residue was found to be 1.78gm. the residue was then ignited at 750^0C to a constant wt. 0.246gm. Calculate the percentage of fixed carbon in a coal sample.

Q.2} Attempt ANY One of the following. **05**

1. Explain the Ultimate analysis of Coal.
2. Explain Derivatisation principle of Green Chemistry with suitable example.

*-*Best Luck *-*