



Applied chemistry- II

Marks: 15

Date: 16 February 2015

Time: 45 min.

N.B.

1. Question No. 1 is compulsory.
2. Attempt either question no.Q2 or Q3.
3. Figures to the right indicate full marks.

Q: 1 Attempt any two of the following [6]

- a. Why small quantity of ethyl bromide is added to petrol along with TEL?
- b. What is Trans esterification?
- c. 1.5 gm of coal sample taken for C and H estimation by combustion method. The increase in weight of tubes containing anhydrous CaCl_2 and bulb containing KOH was found to be 1.25 gm and 4.88 gm respectively. Calculate the percentage of carbon and hydrogen.
- d. Define Refining. Draw fractional distillation tower diagram.
- e. A sample of coal has the following analysis: C=70%, S=1.5%, N=0.4%, H=5% and O=23% and ash=0.1%. Find the gross calorific value.

Q: 2A) A sample of coal was found to have the following percentage composition: [5]
C =75%; H =5.2%; O = 12.1 %; N = 3.2 % and ash = 4.5 %.

Calculate the minimum amount of air necessary for combustion of 1 kg of coal.

B) What is Catalytic cracking? Explain Moving bed catalytic cracking method. [4]

Q: 3A) The composition of gas was found to be: [5]

CH_4 =16%; H_2 =10%; CO = 22 %; C_2H_6 =20%; N_2 = 6 %; CO_2 =18% and O_2 = rest %.

Calculate volume and weight of air required for combustion of 10m^3 of fuel.

(Mol. Wt. of air =28.949)

B) Explain proximate analysis with significance [4]