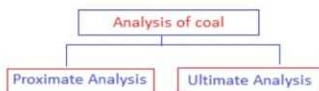


124.	Calculate the Gross and Net calorific values of a coal having the following compositions, C = 63 %, H = 19 %, O = 03 %, S = 13 % and ash=2. Latent heat of steam is = 587 cal/gm.	CO5	BTL3
125.	What is analysis of coal? Explain proximate analysis of coal and write its significance and importance.	CO5	BTL4
Analysis of coal:			

The composition of coal varies widely and hence it is necessary to analyse the coal samples so that it helps to know the quality of coal.



It means finding out weight percentage of moisture, volatile matter, fixed carbon and ash in coal

Determination of moisture content in coal

About 1 gm of powdered, air dried coal sample is heated in silica crucible at 100 to 105 °C for one hour. Percentage of moisture can be calculated from the loss in weight of the coal sample as

$$\therefore \% \text{ of moisture in coal} = \frac{\text{Loss in weight of coal}}{\text{Weight of coal initially taken}} \times 100$$

Determination of Volatile Matter (V.M.) in coal

After the analysis of moisture content the crucible with residual coal sample is covered with a lid, and it is heated at 950 ± 20 °C for 7.0 minutes in a muffle furnace. Percentage of volatile matter can be calculated from the loss in weight of the coal sample as

$$\therefore \% \text{ of volatile matter in coal} = \frac{\text{Loss in weight of moisture free coal}}{\text{Weight of coal initially taken}} \times 100$$

Determination of ash in coal

After the analysis of volatile matter the crucible with residual coal sample is heated without lid at 700 ± 50 °C for 30 minutes in a muffle furnace.

Percentage of ash content can be calculated from the loss in weight of the coal sample as

$$\therefore \% \text{ of ash in coal} = \frac{\text{Weight of ash formed}}{\text{Weight of coal taken}} \times 100$$

Determination of fixed carbon

It is determined by subtracting the sum of total moisture, volatile and ash contents from 100.

$$\% \text{ of fixed carbon} = 100 - \% \text{ of [moisture + V.M + ash]}$$