

Assignment 5

Fuels

- Q1. Define calorific value.
- Q2. Write the relation between GCV and NCV (HCV and LCV).
- Q3. 0.72 g of fuel containing 80 % carbon when burnt in a Bomb calorimeter increased the temperature of water from 27.3 to 29.1°C. If calorimeter contain 250g of water and water equivalent if 150g. Calculate the HCV and LCV.
- Q4. The following data is obtained in a Bomb calorimeter experiment.
- Wt of crucible = 3.649g, crucible + fuel = 5.92g, water equivalent of calorimeter = 570g, water in calorimeter = 2500g. Observe rise in temperature = 2.4°C, cooling correction = 0.047°C, acid correction = 62.6 cal, fuse wire correction = 3.8 cal, cotton thread correction = 1.6 cal. Calculate the GCV and NCV of fuel sample, if fuel contain 6.5% H.
- Q5. Calculate the higher and lower calorific value of a fuel that contains 85% carbon, 1.5% sulphur, 0.6% nitrogen, 5.5% hydrogen and 7.4% oxygen. (Latent heat of steam is 587 cal/grams).
- Q6. Explain with a neat sketch the bomb-calorimetric method of determining the calorific value of coal.
- Q7. Define HCV and LCV. Calculate the gross and net calorific value of coal having the following compositions: C=86%, S=1%, H=7%, N=2% and remaining ash. Latent heat of steam 587 cal/g.
- Q8. Explain determination of calorific value of solid fuel.
- Q9. Define a fuel. How chemical fuels are classified?
- Q10. Mention the characteristics of a good fuel.
- Q11. Arrange peat, lignite, bituminous coal and anthracite in increasing order of their moisture content?
- Q12. Write the significance of proximate and ultimate analysis of a coal.
- Q13. Explain term “Biogas”.