## Q: What is calorific value ? And what are the factors affecting it ? (3 marks)

A: Calorific value is the amount of heat released when a substance undergoes complete combustion. It's typically expressed as energy per unit mass or volume. Factors influencing calorific value include the chemical composition of the fuel, its moisture content, and the presence of impurities.

## Q: difference between coking coal and caking coal (3 marks)

A: Caking coal, a type of bituminous coal, softens and fuses upon heating, forming a coke mass. Coking coal is a specific type of caking coal that meets strict metallurgical requirements for coke production. These requirements ensure the coke's strength and reactivity are suitable for blast furnaces. Essentially, all coking coals are caking coals, but not all caking coals are coking coals.

## Q: what is cracking of crude oil ? List its types (4 marks)

A: Cracking is a process in petroleum refining that breaks down large, complex hydrocarbon molecules in crude oil into smaller, more useful ones like gasoline and other fuels. This is achieved through high temperatures and pressures, sometimes with the aid of catalysts. There are two main types: thermal cracking, which uses heat alone, and catalytic cracking, which employs catalysts to enhance the efficiency and product yield. Fluid catalytic cracking (FCC) is a widely used subtype of catalytic cracking. Hydrocracking, another subtype, incorporates hydrogen to produce higher-quality products and reduce unwanted byproducts.