***JS2***

***BASIC SCIENCE***

***FRACTIONAL DISTILLATION OF CRUDE OIL***

Fractional distillation is a process by which crude oil is separated into it's component substances by making use of their boiling points.This process takes place in very large fractionating columns or towers which has different parts lined up with trays.The crude oil is pre-heated to about 400 degrees Celsius in an electric furnace.The heated crude oil changes into a mixture of hot liquid and vapour,which flows into a high fractionating column through pipes.The trays in the fractionating column have their exact temperature for collecting the products of crude oil.Each tray below the fractionating column is slightly higher in temperature than the one above it.So the temperature decreases from the bottom or floor of the columns or towers to the top.The upper part of the fractionating tower is about 40 degrees celsius, while the lower part is about 500 degrees Celsius. So as the vapour of each crude oil product goes up the tower ,it cools, and changes to liquid by condensation. This liquid substance is then collected as a separate fraction or product. It is observed that the products or fractions are collected through side stream pipes as separate fractions at different boiling points. Substances of higher boiling points are separated and collected in the lower trays while those with lower boiling points are collected in upper trays. Also the fractions collected in the first distillation are redistilled to obtain a purer fraction.

***Some of the fractions are as follows***

1. Gas-used for cooking and heating things in factories

2. Petrol-used as fuel for vehicles and engines

3. Kerosene-used in stoves, jet engines

4. Diesel-for heavy duty trucks and engines

5. Lubricating oil-used to reduce friction in machines

6. Paraffin wax-used for making candles,polish,waterproof

7. Vaseline-use for body care products

8. Bitumen-for tarring road, repairing leaking roof.

8. Naphtha-for making petrochemicals

***Assignment***

1.Explain fractional distillation

2.Explain condensation

3. Why is crude oil called a Hydrocarbon?

***Submit assignment at the school’s security post***