Name = Vikas Jorwal
RollNo = 19145079
Dept = metallurgical eng
SUB = Fuel & Refractories

Assignment = 5

Q.1

Sol 2 — Source of liquid fuel :-

the oil is derieved from the following four different sources including crude petroleum.

(1) crude oil
(2) Oil shale
(3) Coal tar fuel, and
(4) synthetic oil or hydrogenation of coal

(1) crude petroleum :- the crude petroleum is available in different part's of the world but unlike coal, they do not differ in composition widely.

- The chemical composition of crude petroleum vary within narrow limits as given in table.
- The crude oil is a mixture of hydrocations, paraffin, define & naphthalene, Aromtic and asphaltic compounds ranging from simplest gaseous member methane to complex waves and bitumen.
- the average chemical composition of crude oil:-

C = 83-87%, H = 10-14%, N = 0.1-2%, O = 0.1-1.5%
S = 0.5-6%, Metals < 1000ppm, with presence of organic compounds.

(ii) oil shales - these are sedimentary rocks, impregnated with oil, these are recovered by rock mining. the cost of recovering oil is higher than conventional crude oil, and therefore these are least exploited.

- Resources - The oil shale has been found in many parts of the world, but bigger deposits are found in America. the global deposits of oil represent as oil shale are estimated Around 3 trillion bassels. these deposits may gain importance with increase in oil price

• Applications :- the oil shale as much can be used for burning (like coal) to generate steam. the oil produced from oil shale can be used for combustion.

Environmental issues :- the exploitation of oil shale has initiated several environmental issues like ground water contamination by Acids, presence of mercury and ground water contamination during mining, sulphur, emission during burning etc.

(iii) Coal tar fuel (CTF) :→

Generation as a by-product :→

Coal tar is obtained during coke making process as a by-product Valatile fraction. the coal carbonization done at low temp (≤ 700°C) yield semi-coke and ~~at low temp~~ tar, called low temp tar, as by product in Addition to coke oven gas as ~~main~~ main product for the production of Chemical fertilizer the high temp. (1200°C) by product coke making process gives metallurgical coke as main product Along with coke oven gas and tar (high temp. tar) as by-product.

Q.2

Ans 2 Crude oil distrillation fractions and their use:-

S.N	Fraction Distilled	Distillation pressure	Boiling Ronze (°C)	use
1.	Natural gas	under reduced pressure	Below 30	Fuel, reductio in DRI
2.	Gasoline (petrol)	Atmospheric.	30–200	engine fuel
	Aviation petrol		30–150	Aviation
	Motor petrol		40–180	Automobile
	vaporizing oil		110–200	Heavy engine
3	solvent spirit	" "	120–250	organic solvent for cleaning and paint
4.	Dissel	" "	Above 180	Heavy vechicle fuel
5.	Light fuel oil	Vac. distillation	Above 200	fuel for ship and industrial
6	Heavy fuel oil	— do —	About 250	fuel for industrial furnaces