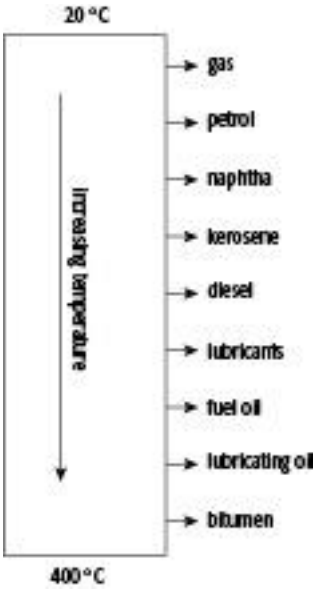
Distillation of petroleum and cracking

1 Distilling petroleum

Many useful chemicals can be obtained from petroleum (crude oil). The first stage to obtaining these fractions and compounds is fractional distillation of the petroleum.

In the petrochemical industry



- Petroleum is vaporised and fed into the bottom of the fractionating column.
- As the vapour rises, different fractions condense at different levels.
- The different fractions are run off down separate pipes.
- Gases, which do not condense, are led off at the top.
- Bitumen, which leaves at the bottom of the tower, is

a Why do the gases not condense?

……

b Why do the fractions condense at different levels?

……

c Which fraction has the higher boiling point, petrol or naphtha?

……

d Why does the bitumen not vaporise?

……

e Complete the table by giving one use for each of the following fractions.

Fraction	Use
petrol (gasoline)	
naphtha	
kerosene (paraffin)	
lubricating oil	
bitumen	

2 Complete these sentences by choosing the correct word from each pair.

The hydrocarbons in petroleum are called **alkanes / alkenes**. Their carbon atoms are joined by **single / double** bonds. They cannot form any extra bonds so they are said to be **saturated / unsaturated**. When long- chain hydrocarbons from petroleum are cracked, **alkanes / alkenes** such as ethene are formed. Ethene has a carbon–carbon **single / double** bond. This can open up to add more atoms, so ethene is said to be **saturated / unsaturated**.

TOTAL: ___/15