**1** a because their boiling points are low (below ambient temperature) so they do not condense in the tower

b because the boiling points of the fractions are different and they condense at different heights in the column

c naphtha

d The boiling point of bitumen is too high – it does not vaporise.

e

|  |  |
| --- | --- |
| **Fraction** | **Use** |
| petrol (gasoline) | fuel for cars |
| Naphtha | source of chemicals |
| kerosene (paraffin) | aircraft fuel, heating oil |
| lubricating oil | lubricating engines / moving parts |
| Bitumen | road surfacing |

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