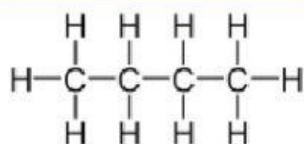
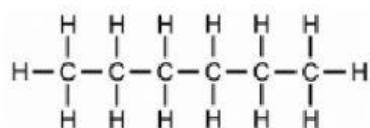
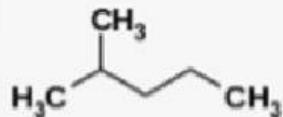
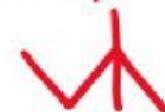


Tutorial Physical properties**Boiling point (BP)****Different Mr/
Molecular weight****Low Mr, Low BP****High Mr, High BP****Same Mr/Molecular mass but
Branched vs unbranched****Unbranched Alkane, High BP****Branched alkane, Low BP****Boiling point****b) Same Mr (Branched vs Unbranched)**

Unbranched
alkane
 C_6H_{14}

(A)

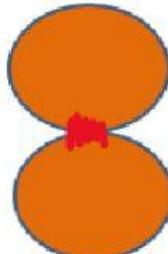
Branched
alkane
 C_6H_{14}

(B)

- All molecules possess same Mr

- Unbranched alkane has bigger size of molecule
- Bigger contact surface area

- Stronger IMF/Van der Waal forces
- More energy needed to break the forces

Boiling point A > B

Note: **Mr = Relative molecular weight**
All alkanes have London Dispersion forces as its IMF

Physical Properties

1. Arrange the following molecules ascending order of boiling point. Explain your answer.

a) Heptane vs 2-methylhexane



VS



Heptane
Unbranched
 C_7H_{16}

2-methylhexane
Branched
 C_7H_{16}

Heptane and 2-methyl hexane have similar _____.

Heptane is _____ alkane while 2-methylhexane is _____ alkane.

Unbranched alkane has _____ molecule than branched alkane.

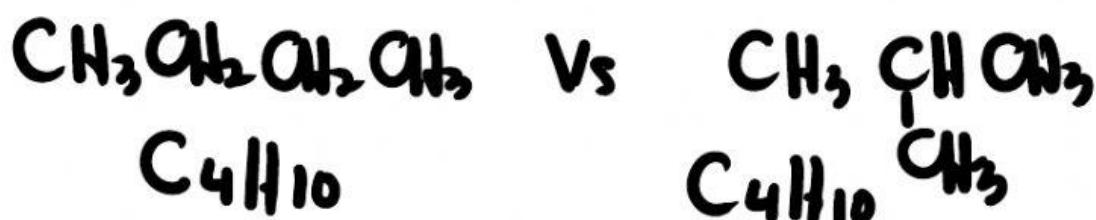
Heptane has _____ contact surface area than 2-methylhexane.

_____ has stronger Intermolecular forces than _____.

_____ energy is needed to break the forces in _____.

Higher boiling point for _____.

b) Butane vs 2-methylpropane



Butane and 2-methylpropane have similar _____.

Butane is _____ alkane while 2-methylpropane is _____ alkane.

Unbranched alkane has _____ molecule than branched alkane.

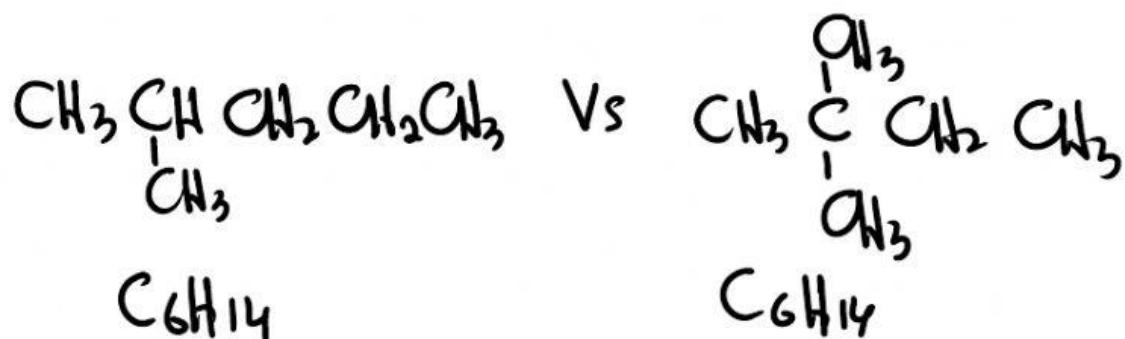
Butane has _____ contact surface area than 2-methylpropane.

_____ has stronger Intermolecular forces than _____.

_____ energy is needed to break the forces in _____.

Higher boiling point for _____.

c) 2-methylpentane vs 2,2-dimethylbutane



2-methylpentane and 2,2-dimethylbutane have similar _____.

Both compounds are _____ alkane but 2,2-dimethylbutane has more branches than 2-methylpentane.

2-methylpentane has _____ molecule than 2,2-dimethylbutane.

2-methylpentane has _____ contact surface area than 2,2-dimethylbutane.

_____ has stronger Intermolecular forces than _____.

_____ energy is needed to break the forces in _____.

Higher boiling point for _____.