

# EP3\_5A N5 Hydrocarbons

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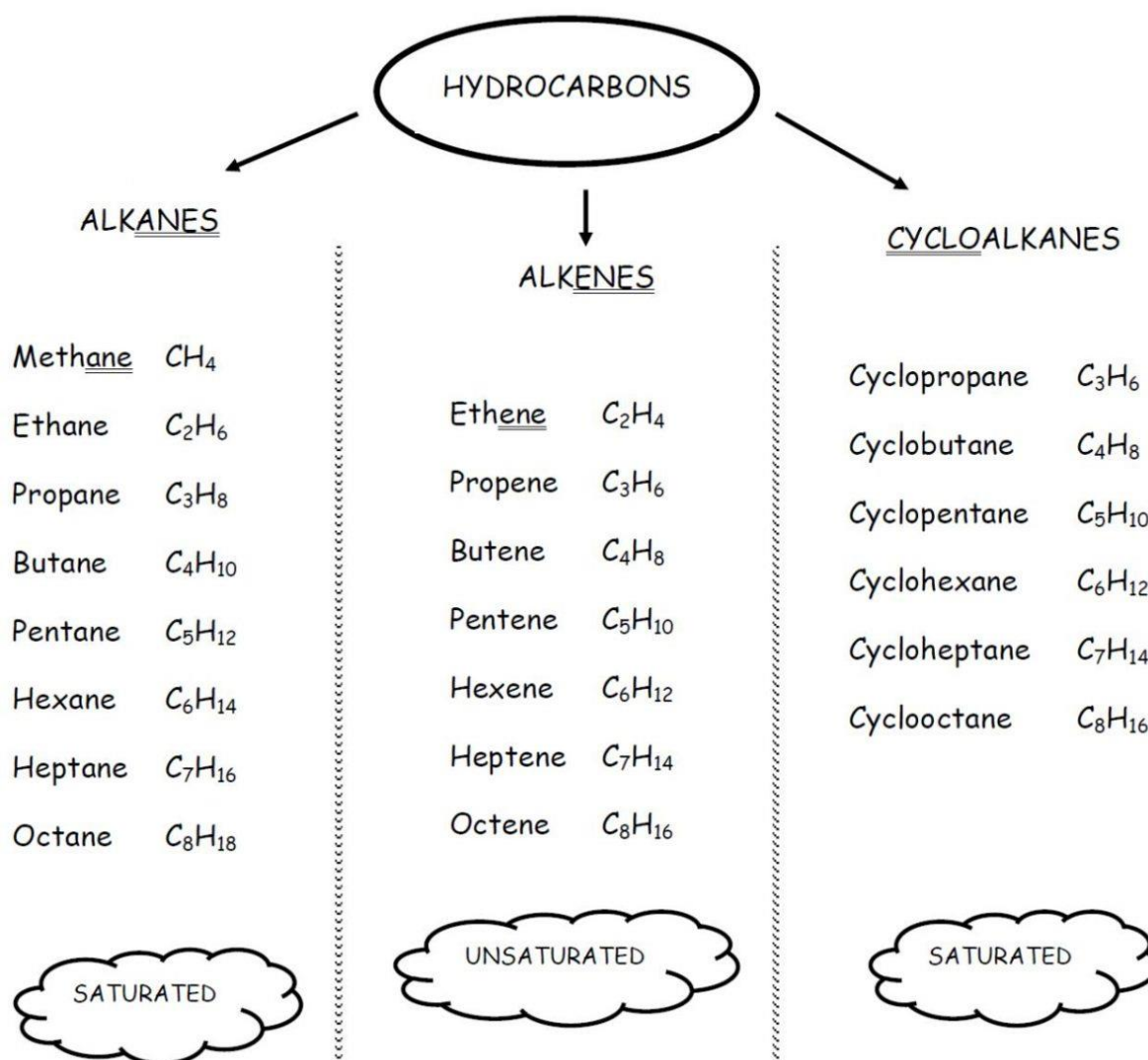
Write the title of this Exercise as a heading: EP3\_5A N5 Hydrocarbons



## SUMMARY

### 14. Hydrocarbons

Hydrocarbons are compounds formed between HYDROGEN and CARBON.

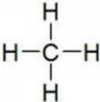
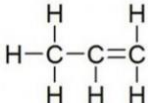




## QUESTIONS

1.

Examine the structures and names of compounds in the box below.

A 	B butane	C cyclopentane
D ethene	E 	F cyclopropane

Identify the boxes which show

i) an alkene (2 boxes)

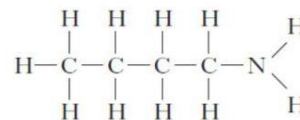
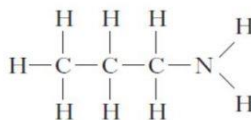
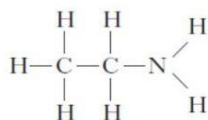
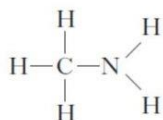
ii) an alkane (2 boxes)

2. Draw the full structural formula for the following:

- propane
- ethane
- ethene
- cyclopentane

3.

The first four members of the amine homologous series are:



What is the general formula for this homologous series?

- $\text{C}_n \text{H}_{n+4} \text{N}$
- $\text{C}_n \text{H}_{2n+3} \text{N}$
- $\text{C}_n \text{H}_{3n+2} \text{N}$
- $\text{C}_n \text{H}_{4n+1} \text{N}$

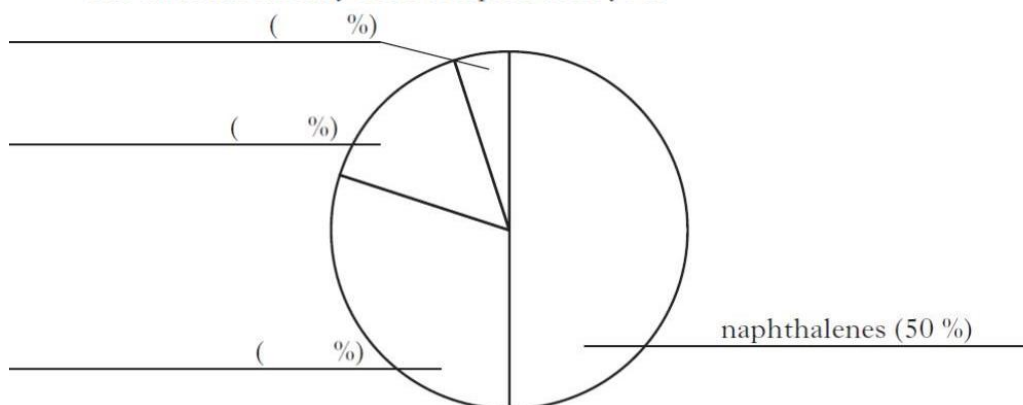
4.

One way of classifying the types of hydrocarbon found in crude oil is shown in the table.

Type of hydrocarbon	% in crude oil
naphthalenes	50
paraffins	30
aromatics	15
asphalts	

(a) Label the pie chart to show the name and percentage for each type of hydrocarbon.

One label has already been completed for you.



(b) The table below gives information about some hydrocarbons obtained from the paraffins.

Name	Formula
octane	$C_8H_{18}$
nonane	$C_9H_{20}$
decane	$C_{10}H_{22}$
undecane	$C_{11}H_{24}$

Name the family of hydrocarbons in the table.

\_\_\_\_\_

1

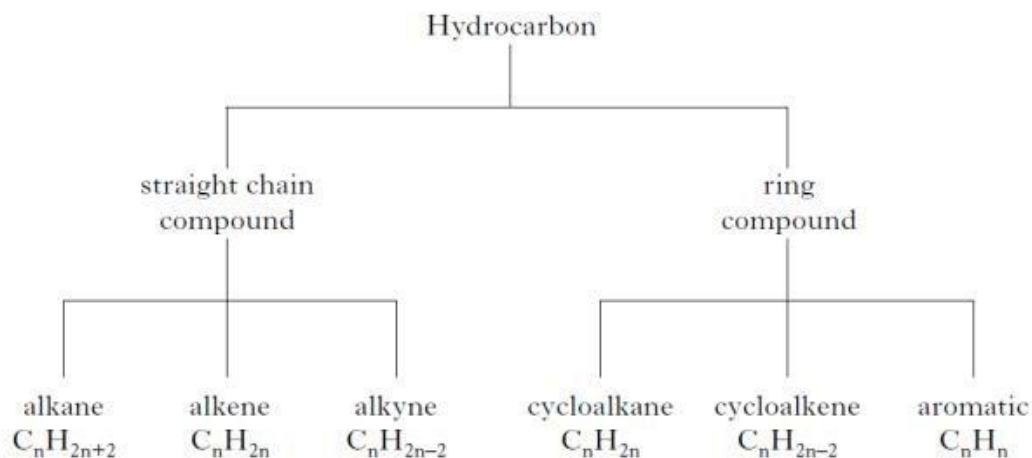
(c) Eicosane is another member of this family.

A molecule of eicosane contains 20 carbon atoms.

Write the molecular formula of eicosane.

5.

The key below shows the name and general formula of some families of hydrocarbons.



(a) (i) Butyne is an alkyne with 4 carbon atoms.

Using the key, write the **molecular** formula for butyne.

1

(ii) Hydrocarbon **X** is a ring compound with molecular formula  $C_6H_6$ .

Using the key, name the **family** to which it belongs.

\_\_\_\_\_

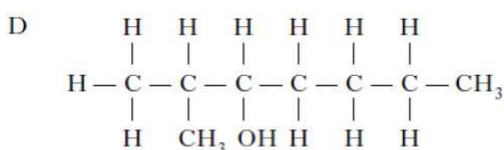
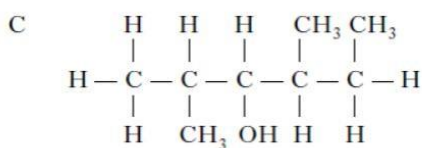
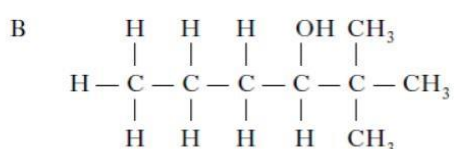
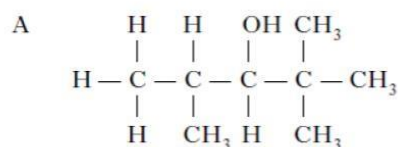
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(b) Draw a structural formula for the alkane pentane.

6.

The shortened structural formula for an organic compound is  $CH_3CH(CH_3)CH(OH)C(CH_3)_3$ .

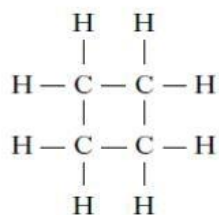
Which of the following is another way of representing this structure?



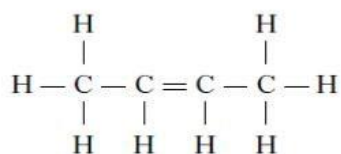
7.

Which of the following compounds belongs to the same homologous series as the compound with the molecular formula  $C_3H_8$ ?

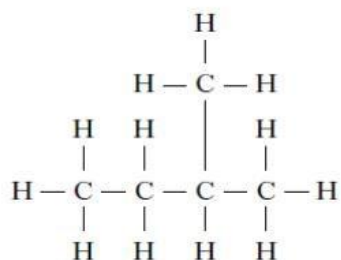
A



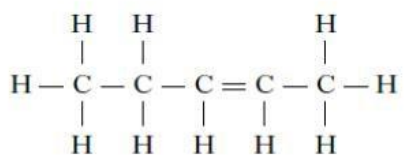
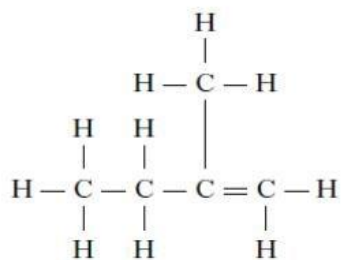
B



C



D



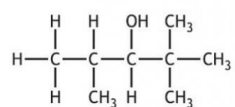
9.

The shortened structural formula for an organic compound is

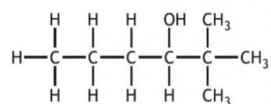


Which of the following is another way of representing this structure?

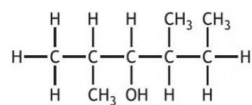
A



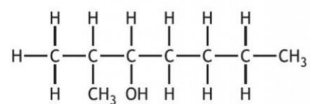
B



C



D



8.

The molecular formula for cyclohexane is

- A  $C_6H_6$
- B  $C_6H_{10}$
- C  $C_6H_{12}$
- D  $C_6H_{14}$

10.

Which of the following could be the molecular formula of a cycloalkane?

- A  $C_7H_{10}$
- B  $C_7H_{12}$
- C  $C_7H_{14}$
- D  $C_7H_{16}$

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**NOW CHECK YOUR ANSWERS**

