

STRUCTURAL ISOMERS – WORKSHEET 1

QUESTION 1

A molecule can have both structural and geometric isomers. True or false?

Solution

QUESTION 2

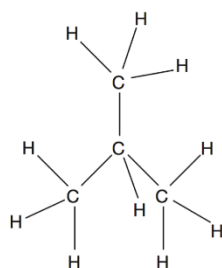
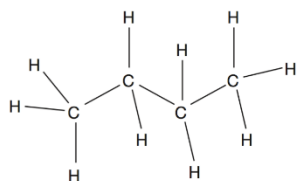
As the number of carbon atoms in each successive member of a homologous hydrocarbon series increases, the number of possible isomers

- A decreases
- B remains the same
- C increases
- D depends on the organic family

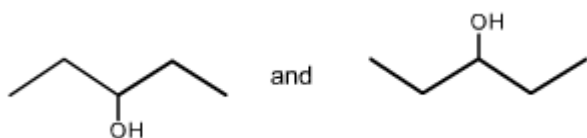
QUESTION 3

Identify each pair of formulae as structural isomers or the same molecule.

(a)



(b)

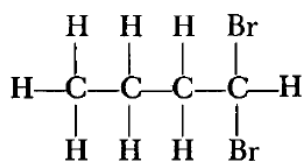


(c)

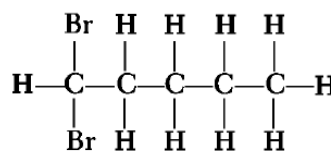


QUESTION 4

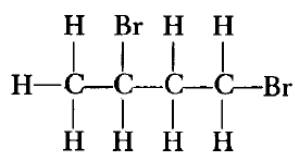
Which formula represents a compound that is a structural isomer of



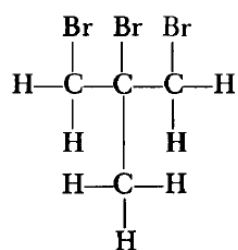
A



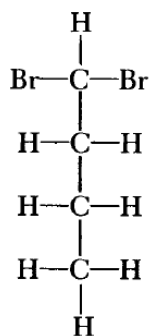
B



C

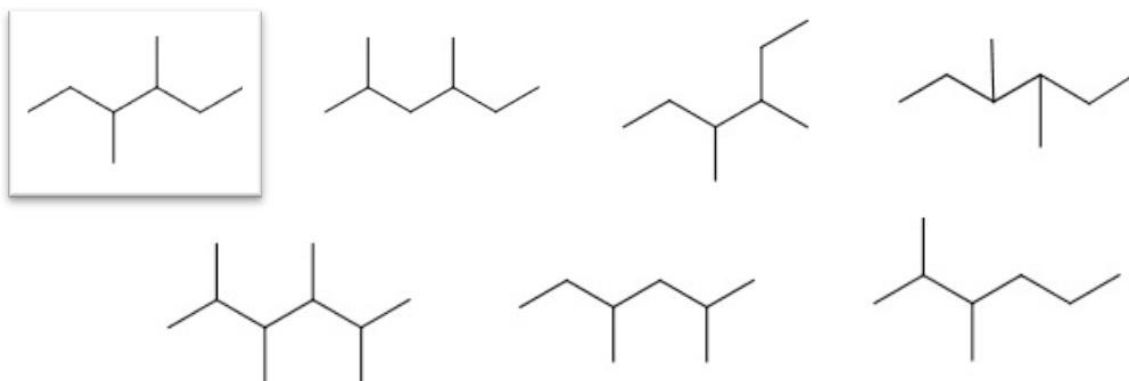


D



QUESTION 5

Identify the structural isomers of the boxed compound.

**QUESTION 6**

Which is a structural isomer of propanoic acid?

- A $CH_2 = CHCOOH$
- B $CH_3CH(OH)CH_2OH$
- C $CH_3CH_2CH_2COOH$
- D $HCOOCH_2CH_3$

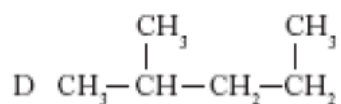
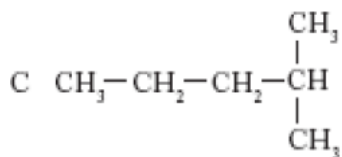
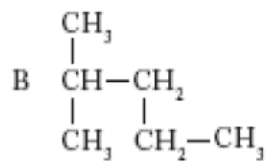
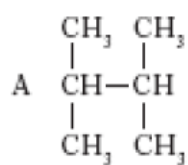
QUESTION 7

Which of the following compounds has a structural isomer?

- A CH_3CH_3
- B $CH_2 = CH_2$
- C $CH_3CH_2CH_3$
- D $CH_2 = CHCH_2CH_3$

QUESTION 8

Which of the following hydrocarbons is an isomer of 2-methylpentane? (One or more answers).

**QUESTION 9**

Draw the structural isomers of hexane and state their systematic names.

Solution

QUESTION 10

Draw the structural isomers of C_4H_9Cl and state their systematic names.

Solution

QUESTION 11

Draw skeletal structures for the 4 isomers of C_4H_9Br and state their systematic names.

Solution

SOLUTIONS

QUESTION 1 True

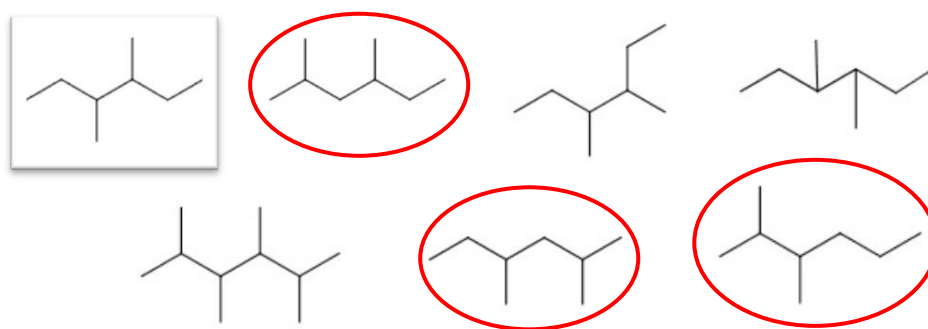
QUESTION 2 Answer is C

QUESTION 3

- (a) Structural isomers
- (b) Same molecule
- (c) Structural isomers

QUESTION 4 Answer is B

QUESTION 5



QUESTION 6 Answer is D

Propanoic acid = CH_3CH_2COOH

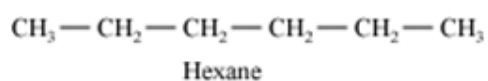
QUESTION 7 Answer is D

QUESTION 8

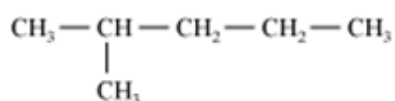
The answer is A.

Molecules B, C and D are the 2-methylpentane, drawn in different ways.

QUESTION 9

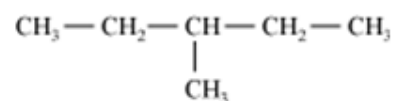


1



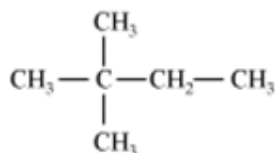
2 - methyl pentane

2



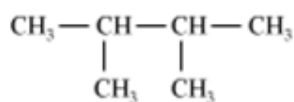
3 - methyl pentane

3



2,2 - Dimethyl butane

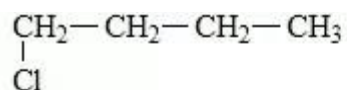
4



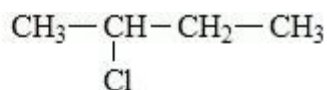
2,3 - Dimethyl butane

5

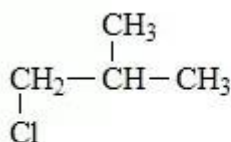
QUESTION 10



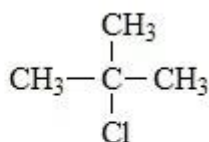
1-chlorobutane



2-chlorobutane

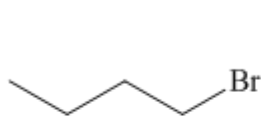


1-chloro-2-methylpropane



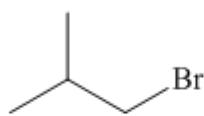
2-chloro-2-methylpropane

QUESTION 11



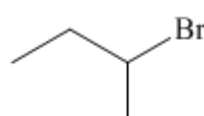
1-bromobutane

I



1-bromo-2-methylpropane

II



2-bromobutane

III



2-bromo-2-methylpropane

IV