

# 10.1 Fundamentals of Organic Chemistry

## Question Paper

Course	DPIB Chemistry
Section	10. Organic Chemistry
Topic	10.1 Fundamentals of Organic Chemistry
Difficulty	Medium

**Time allowed:** 20  
**Score:** /10  
**Percentage:** /100

**Question 1**

How many structural isomers are there of tribromopropane,  $C_3H_5Br_3$ ?

- A** 4                      **B** 5                      **C** 6                      **D** 7

[1 mark]

**Question 2**

How many isomeric esters have the molecular formula  $C_5H_{10}O_2$ ?

- A** 4                      **B** 5                      **C** 9                      **D** 7

[1 mark]

**Question 3**

Which features about the members of a homologous series are correct?

- I. all members have the same general formula
- II. the members have similar chemical properties
- III. the members show a gradual change in physical properties

- A** I and II only
- B** I and III only
- C** II and III only
- D** I, II and III

[1 mark]

**Question 4**

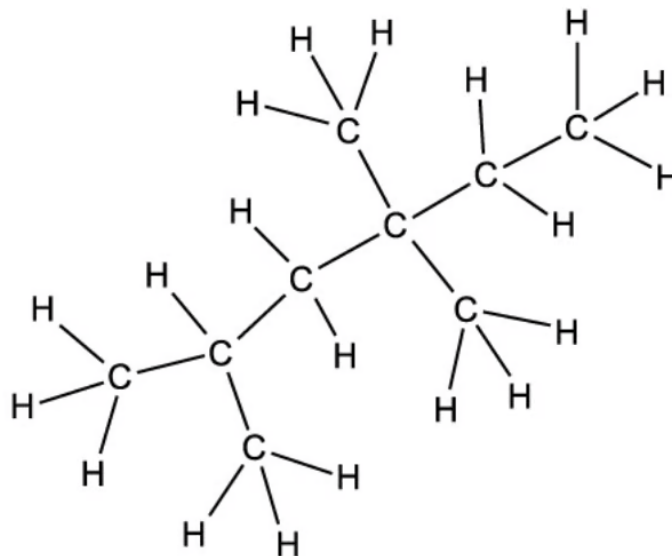
Octane is a component of petrol or gasoline. Which of the following molecules could be an isomer of octane?

- A**  $\text{CH}_3\text{CH}_2\text{CHCHCHCH}_2(\text{CH}_3)_2$
- B**  $(\text{CH}_3)_2\text{CHCH}(\text{CH}_2)_2(\text{CH}_3)_2$
- C**  $\text{CH}_3(\text{CH}_2)_5\text{CH}_3$
- D**  $\text{CH}_3\text{CHCHCH}(\text{CH}_2)_2(\text{CH}_3)_2$

[1 mark]

**Question 5**

Give the name of the following molecule



- A 2,4,4,4-trimethylethylbutane
- B 3,3,5-trimethylhexane
- C 2,4,4-trimethylhexane
- D 1,1,3,3-tetramethylpentane

[1 mark]

**Question 6**

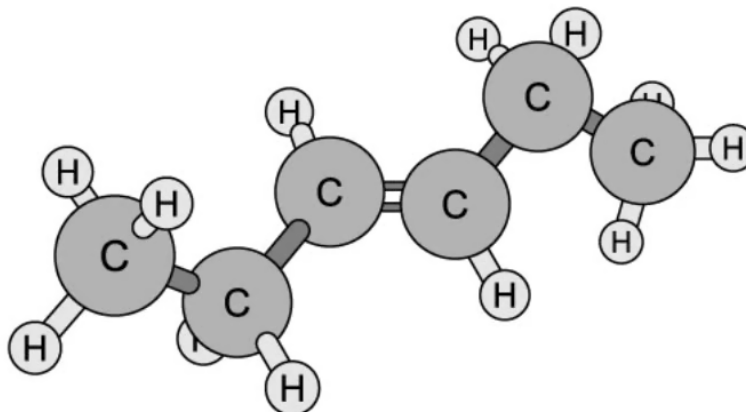
How many branched-chain isomers are there which have the molecular formula  $C_5H_{12}$ ?

- A 2
- B 3
- C 4
- D 5

[1 mark]

**Question 7**

Study the diagram below and determine which of the three statements are correct



- I. A suitable name is hex-4-ene
- II. The empirical formula is  $\text{CH}_2$
- III. It is an isomer of cyclohexane

- A** I and II only
- B** I and III only
- C** II and III only
- D** I, II and III

[1 mark]

**Question 8**

Which of the molecules shown below contains an aldehyde functional group?

- A  $\text{CH}_3\text{CH}_2\text{CH}_2\text{OOCH}_3$
- B  $\text{CH}_3\text{CH}_2\text{CH}_2\text{COCH}_3$
- C  $\text{CH}_3\text{CH}_2\text{OCH}_2\text{CH}_3$
- D  $\text{CH}_3\text{CH}_2\text{CH}_2\text{CH}_2\text{CHO}$

[1 mark]

**Question 9**

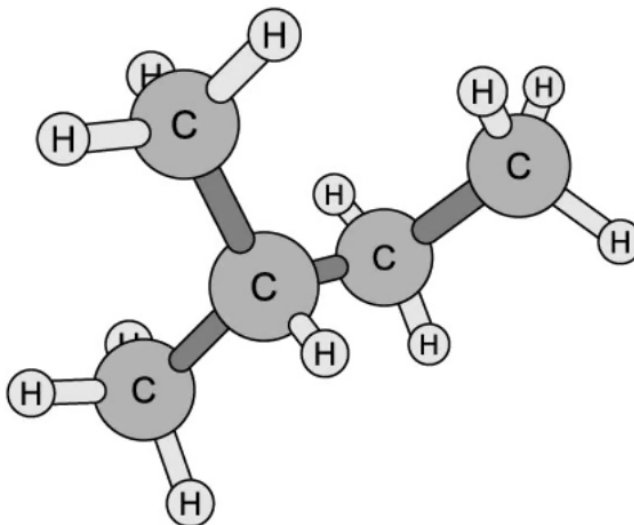
Which of the halogenoalkanes shown below contains a tertiary carbon atom?

- A  $\text{CH}_3\text{CH}_2\text{CH}_2\text{Cl}$
- B  $\text{CH}_3\text{CH}_2\text{CH}(\text{CH}_3)\text{Br}$
- C  $\text{C}(\text{CH}_3)_3\text{Cl}$
- D  $\text{CH}_3\text{CHBrCH}_2\text{CH}_3$

[1 mark]

**Question 10**

What would be the name of the following compound using IUPAC rules?



- A** pentane
- B** ethylpropane
- C** 2-methylbutane
- D** 3-methylbutane

[1 mark]