

SLE155 Chemistry for the Professional Sciences

Burwood and Geelong



**DEAKIN
COLLEGE**



Practice Questions Week 6

Hydrocarbons

Alkanes

Alkenes

Alkynes

Arenes

Q 1

Pentane and cyclopentane are constitutional isomers.

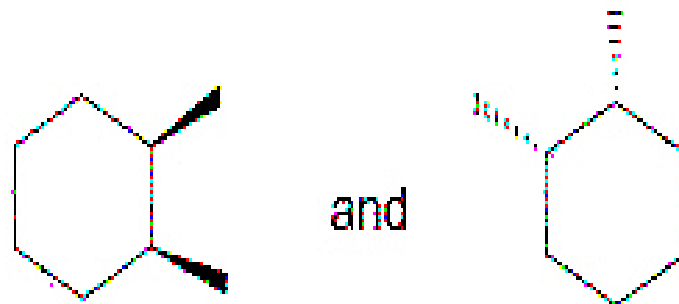
a. True

*b. False

Q 2

The following structures represent the same molecule

- *a. True
- b. False



Q 3

2,3-dimethyl-3-hexene occurs as E and Z isomers.

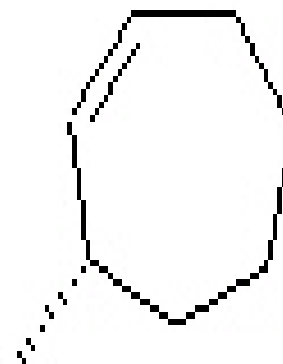
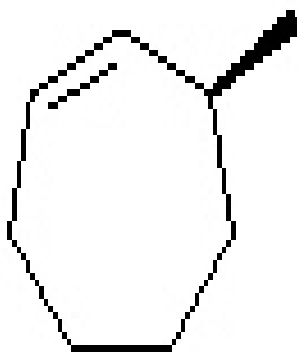
*a. True

b. False

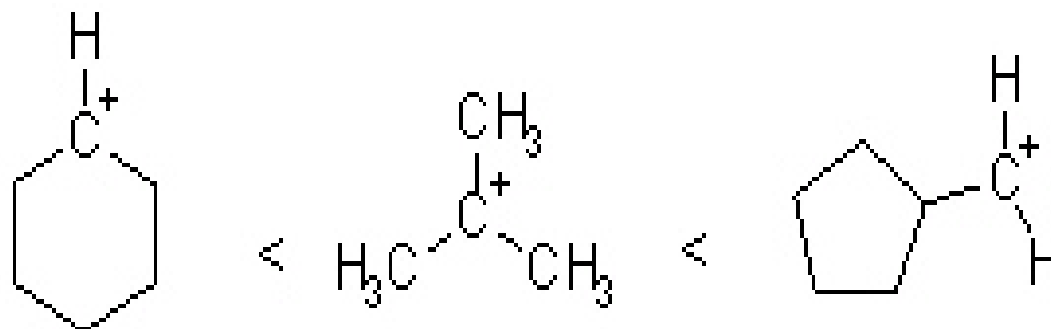
Q 4

The following structures represent isomers.

- a. True
- *b. False



Q 5



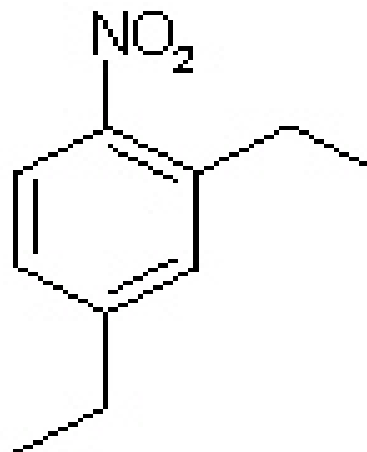
The following carbocations are listed in increasing order of stability (least first).

- a. True
- *b. False

Q 6

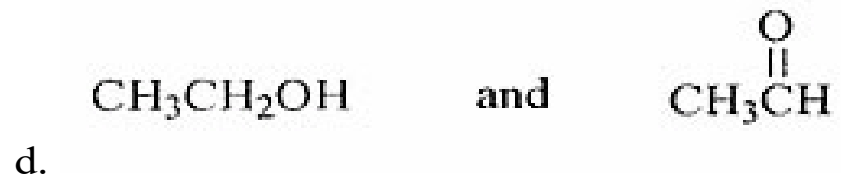
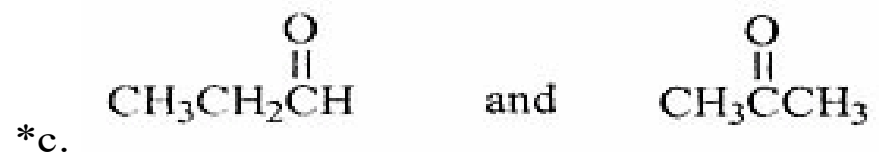
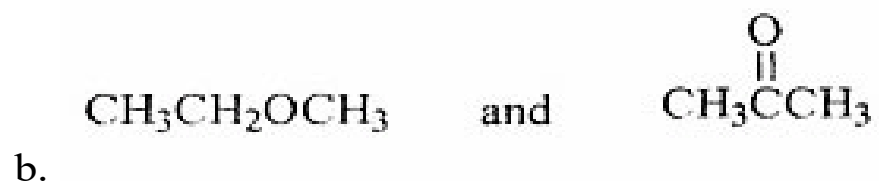
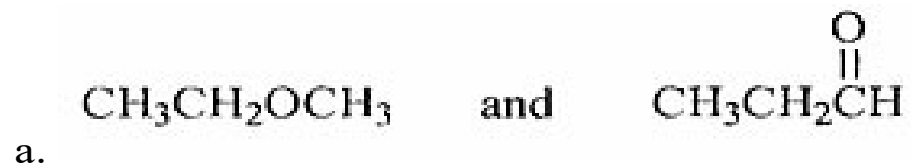
The name of the following structure is 3,5-dibromobenzoic acid

- *a. True
- b. False



Q7

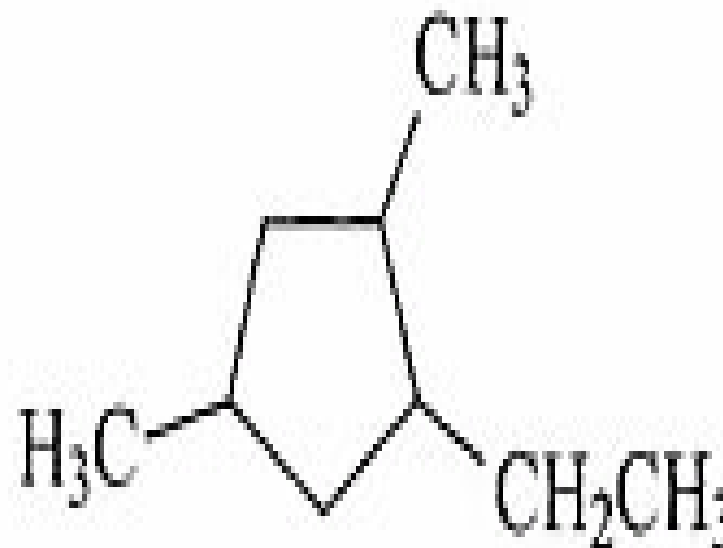
Which of the following molecules are constitutional isomers?



Q 8

Which is the IUPAC name for the following cyclohexane?

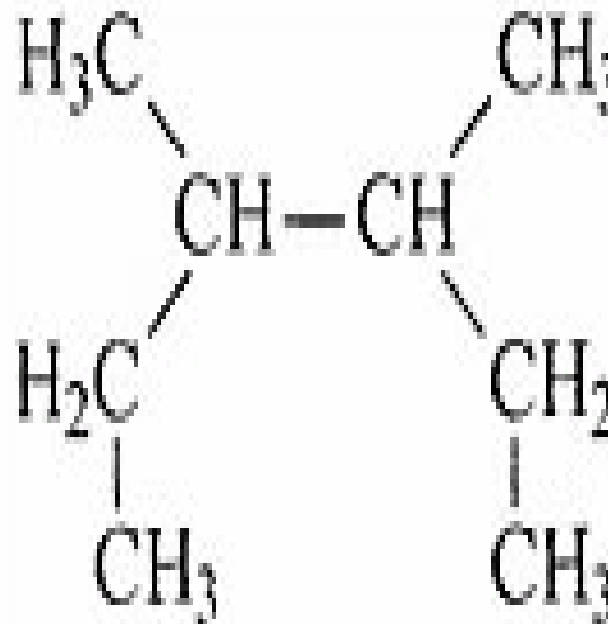
- *a. 1-ethyl-2,4-dimethylcyclopentane
- b. 1,3-dimethyl-5-ethylcyclopentane
- c. 2,4-dimethyl-1-ethylcyclopentane
- d. 1-ethyl-3,5-dimethylcyclopentane



Q 9

Which is the IUPAC name for the following compound?

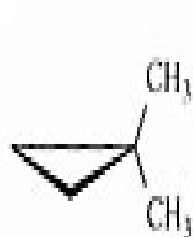
- a. 2-ethyl-3-methylpentane
- *b. 3,4-dimethylhexane
- c. 2,3-diethylbutane
- d. 3-methyl-4-ethylpentane



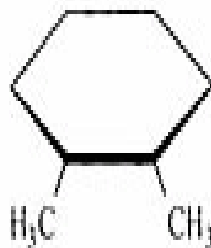
Q 10

Which of the following cycloalkanes show cis-trans isomerism?

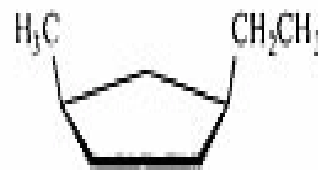
- a. I, V
- b. I, II, V
- c. II, III, V
- *d. II, III, IV



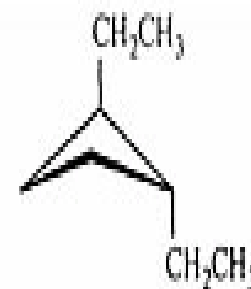
I.



II.



III.

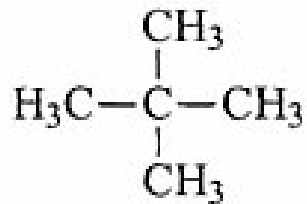


IV.

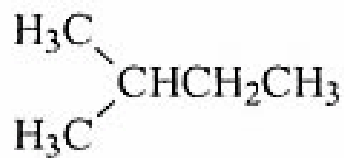


V.

Q 11



*a.



b.



c.



d.

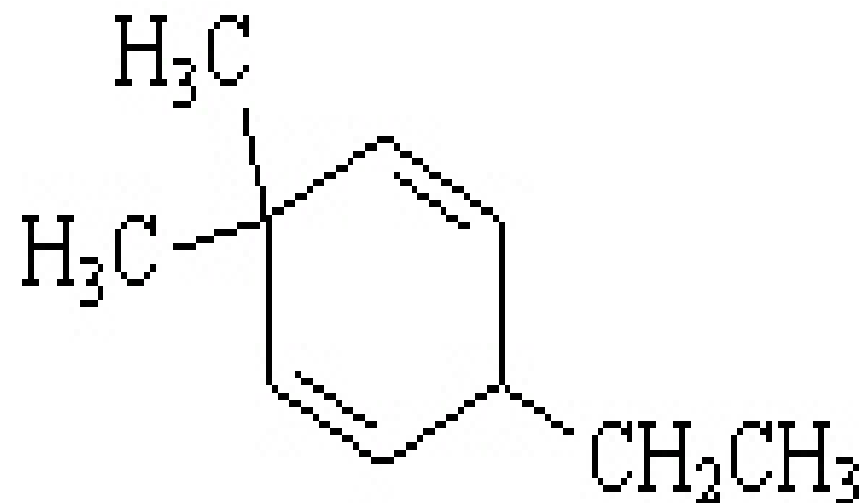
Answer: a

Which compound has the lowest boiling point?

Q 12

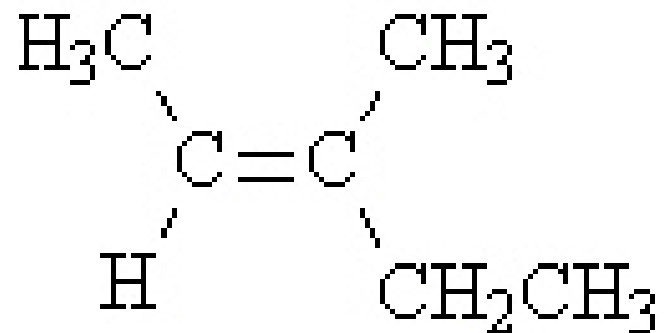
Which is the IUPAC name for the following compound?

- a. 1,1-dimethyl-4-ethyl-2,5-cyclohexadiene
- b. 1-ethyl-4,4-dimethyl-2,5-cyclohexadiene
- c. 3-ethyl-6,6-dimethyl-1,4-cyclohexadiene
- *d. 6-ethyl-3,3-dimethyl-1,4-cyclohexadiene



Q 13

Which is the correct name for the following compound?

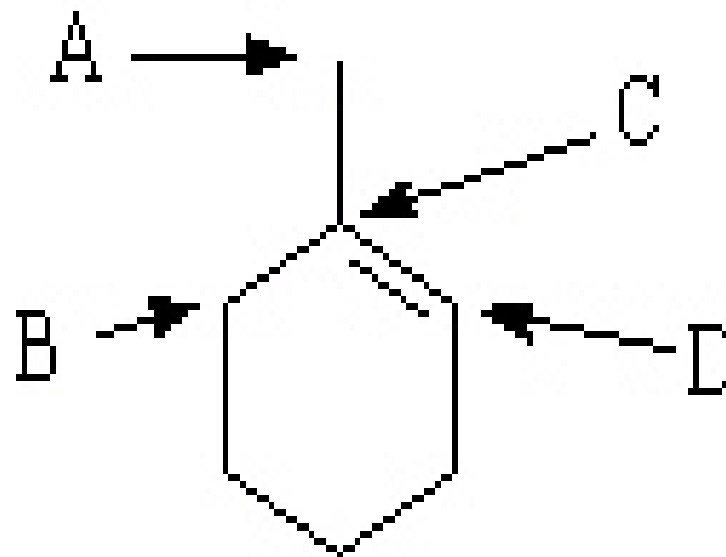


- *a. E-3-methyl-2-pentene
- b. Z-3-methyl-3-pentene
- c. E-2-ethyl-2-butene
- d. Z-3-ethyl-2-butene

Q 14

Using Markovnikov's rule, predict the position of the Cl atom in the major product from the reaction of 1-methylcyclohexene with HCl.

- a. A
- b. B
- *c. C
- d. D



Q 15

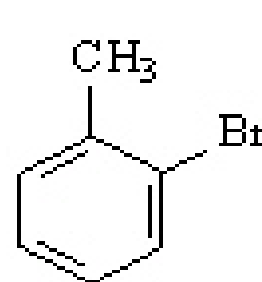
Which is the major product from acid catalyzed hydration of 2-methyl-2-pentene?

- a. 2-methyl-3-pentanol
- b. 3-methyl-3-pentanol
- c. 4-methyl-2-pentanol
- *d. 2-methyl-2-pentanol

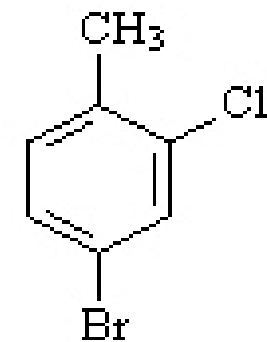
Q 16

Which structures have the correct IUPAC names?

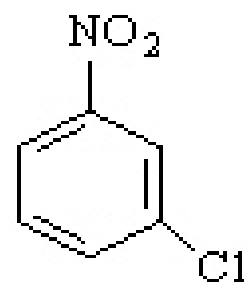
- a. I, II
- b. III, IV
- c. II, III
- *d. I, IV



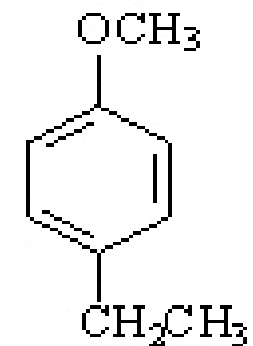
I. 2-bromotoluene



II. *para* methyl, *meta* chloro bromobenzene



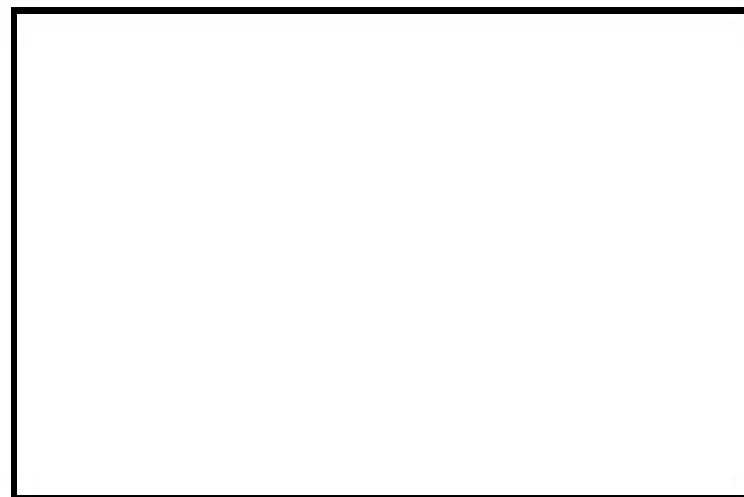
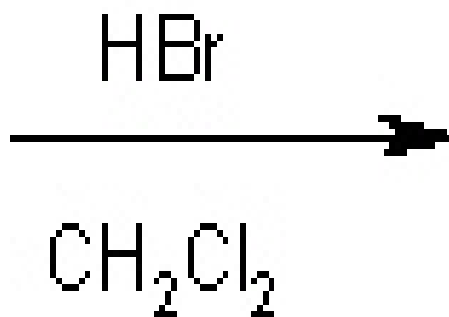
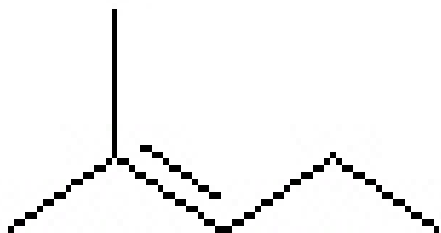
III. *meta* chloroaniline



IV. *para* ethylanisole

Q 17

Complete the following reaction by providing the major product.

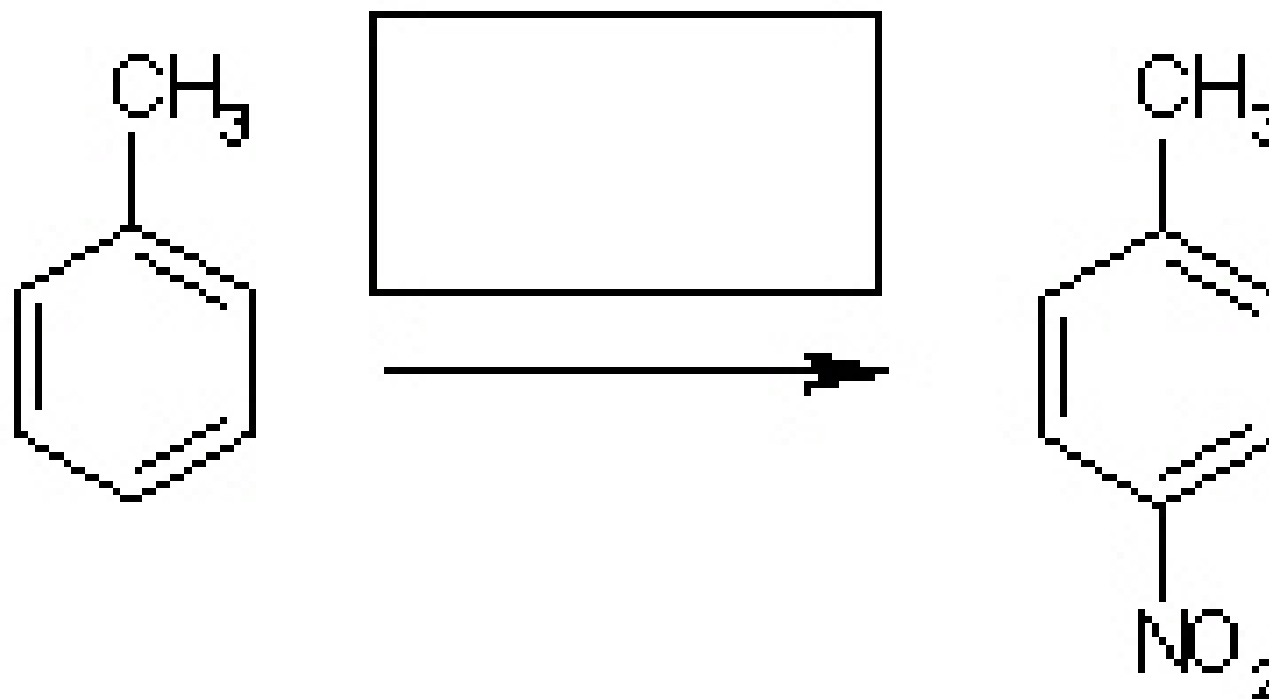


*Answer
below:*



Q 18

The reagent that completes the following reaction is?



Answer: HNO_3 , H_2SO_4