SLE155 Chemistry for the Professional Sciences

Burwood and Geelong

DEAKIN COLLEGE

in association with

DEAKIN UNIVERSITY AUSTRALIA

Practice Questions

Stereochemistry

Chirality

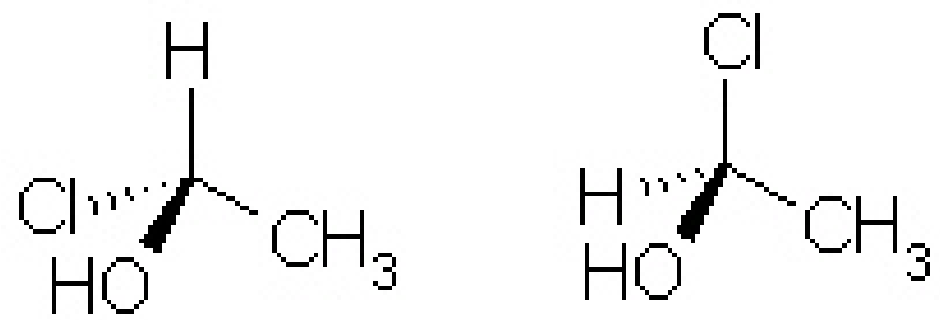
Enantiomers

Diastreomers

R and S configuration

Q 1

The following structures are enantiomers.

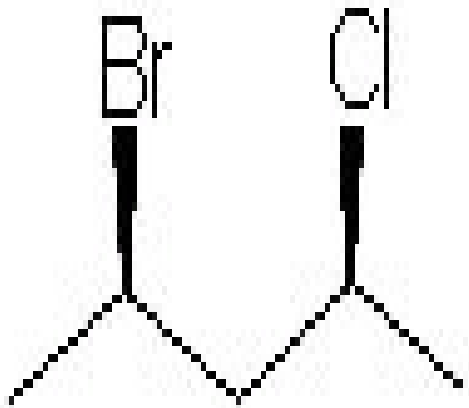


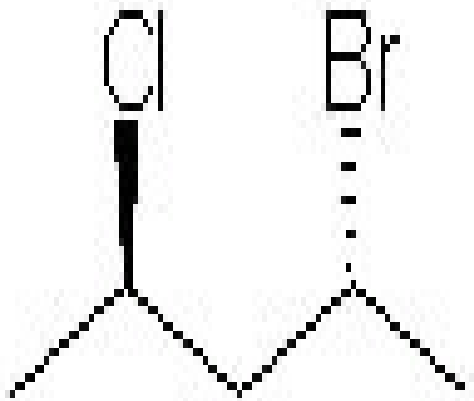
- a. True
- b. False

Q 2

The following structures are diastereomers.

a. True
b. False

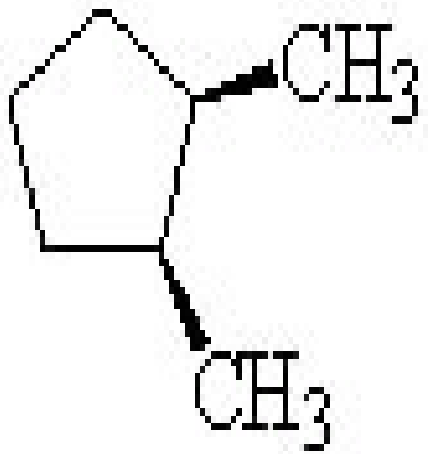


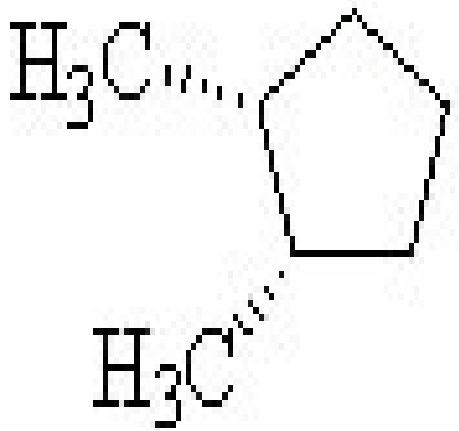


Q 3

The following structures are diastereomers.

a. True
b. False

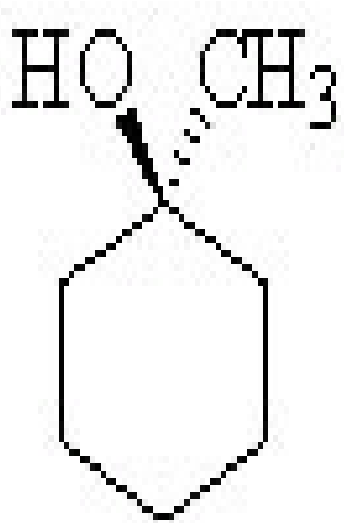


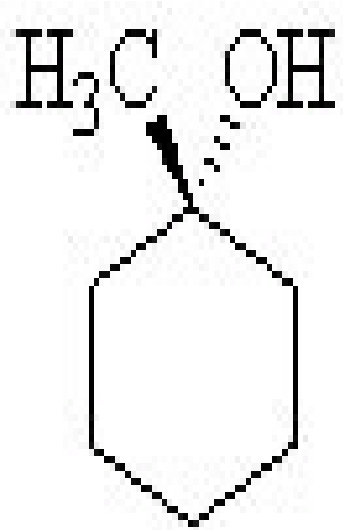


Q 4

The following structures are a pair of enantiomers.

a. True
b. False





Q 5

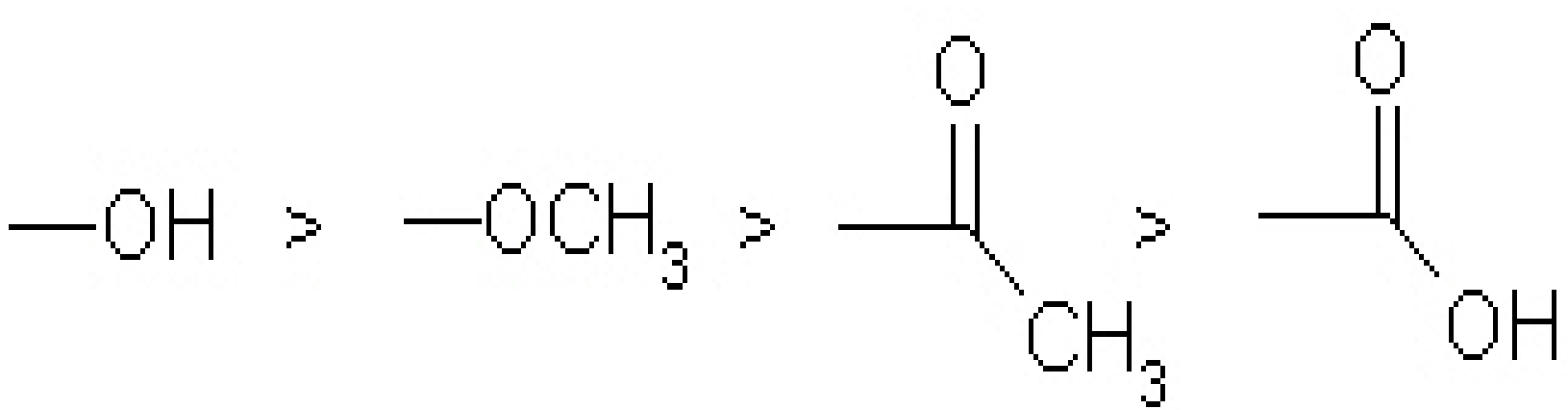
Meso compounds are achiral.

a. True

b. False

Q 6

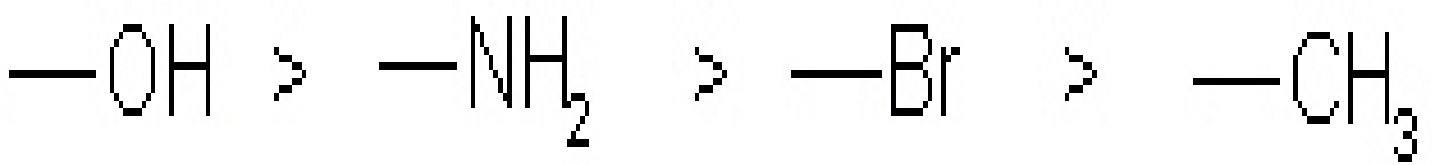
The following groups are listed in decreasing order of priority.



a. True
b. False

Q 7

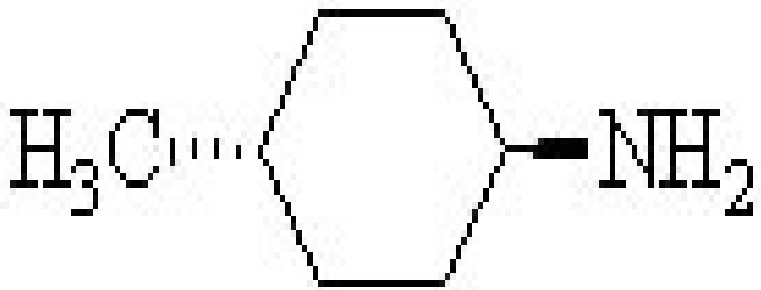
The following groups are listed in decreasing order of priority.



a. True
b. False

Q 8

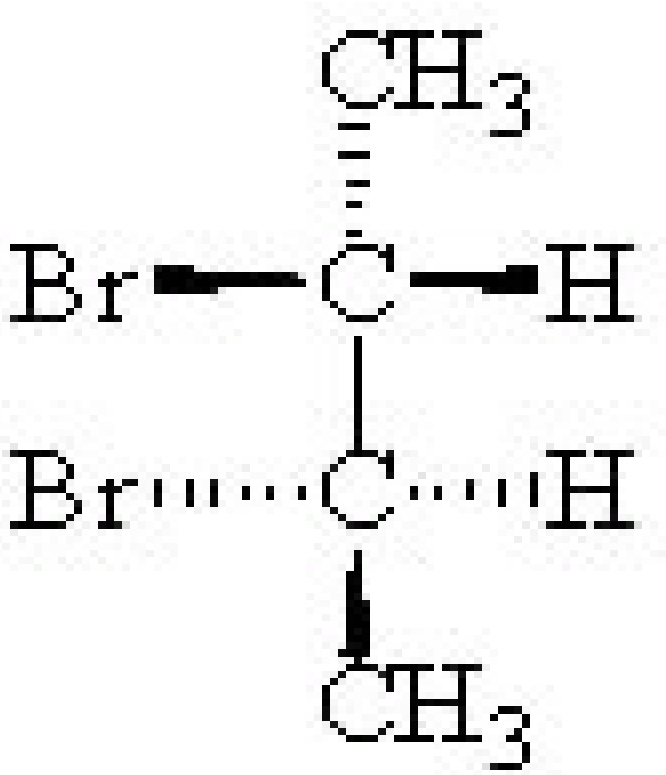
The following structure is achiral.



a. True
b. False

Q 9

The following structure is a meso compound.

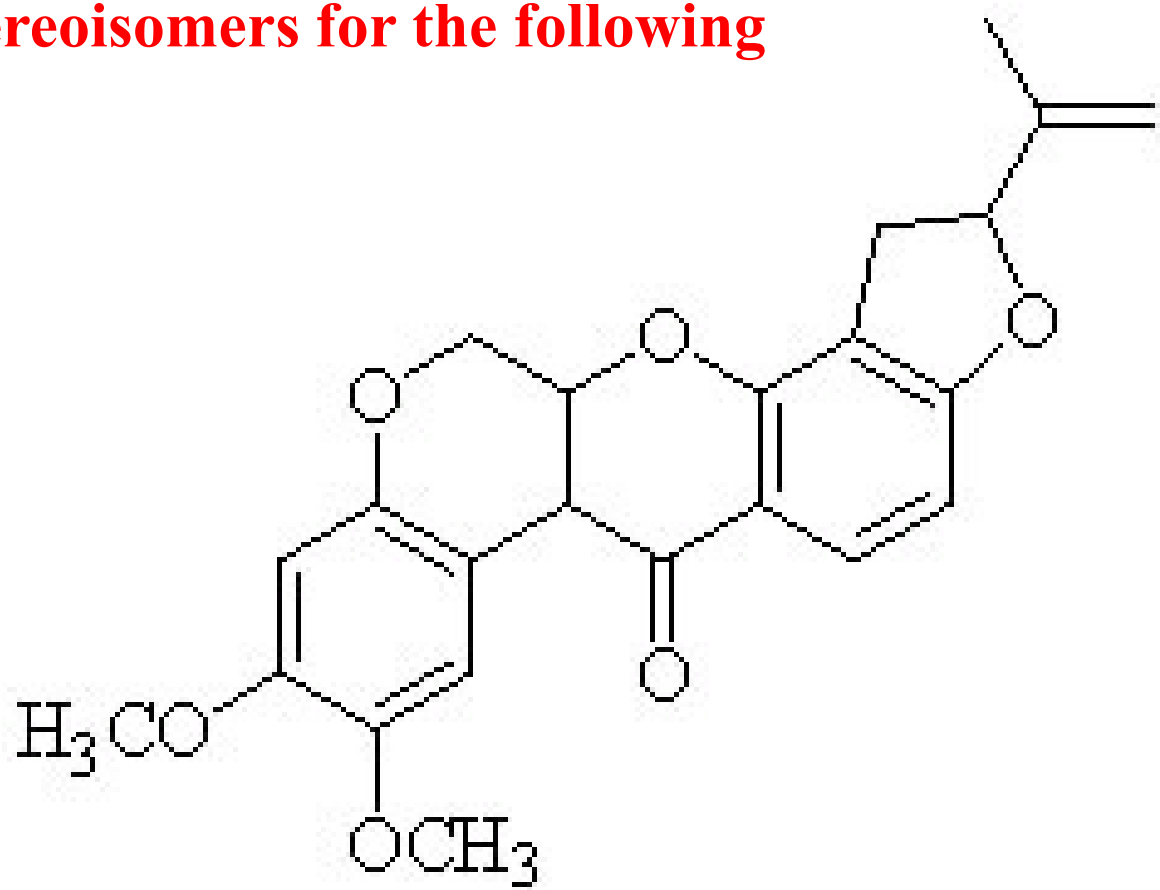


a. True
b. False

Q 10

There are 8 possible stereoisomers for the following compound.

a. True
b. False



Q 11

Which compounds contain stereocentres?

I 1-chloropentane

II. 2-chloropentane

III. 3-chloropentane

IV. 1,2-dichloropentane

a. I, II

b. II, IV

c. I, III

d. III, IV

Q 12

Which of the following compounds are chiral?

I. 2-methylpentane

II. Chlorocyclohexane

III. 3-methyl-2-butanol

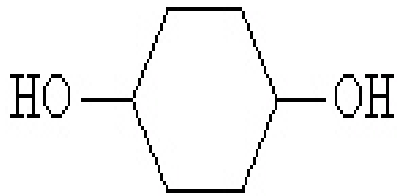
IV. 2-hydroxypropanoic acid

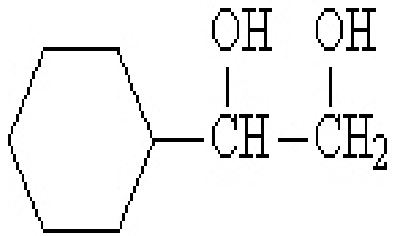
a. II, III and IV
b. I, III and IV
c. I and IV
d. III and IV

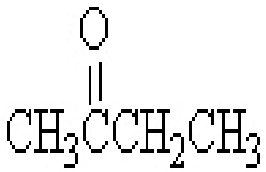
Q 13

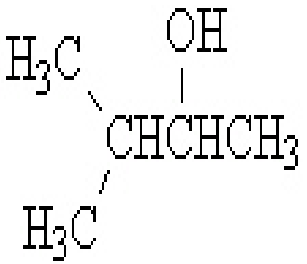
Which compounds contain stereocentres?

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

I. 

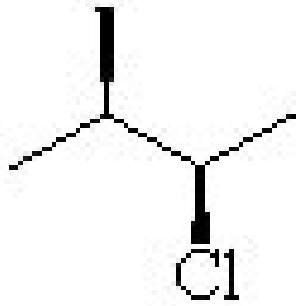
II. 

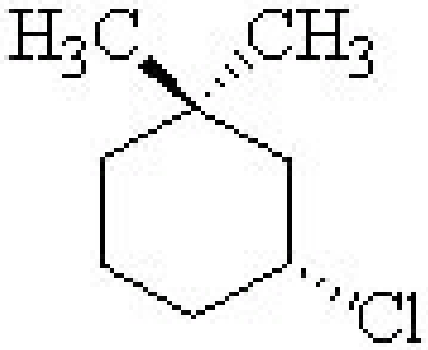
III. 

IV. 

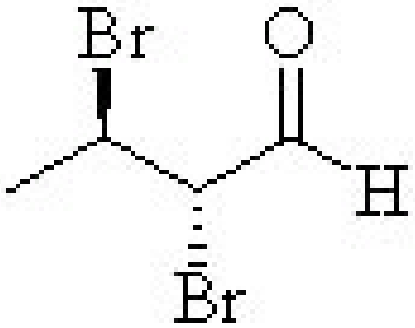
Q 14

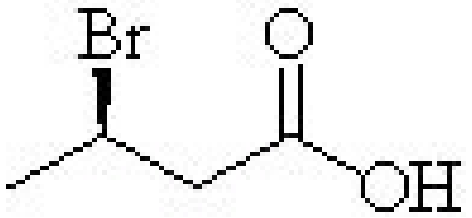
Which compounds have multiple stereocentres?

I 

II 

a. I and III
b. II and III
c. III and IV
d. III only

III 

IV 

Q 15

How many stereoisomers are possible for 4-bromocyclohexanol?

a. 1

b. 4

c. 3

d. 2

Q 16

How many stereoisomers are possible for 2,3-butanediol?

a. 1

b. 2

c. 3

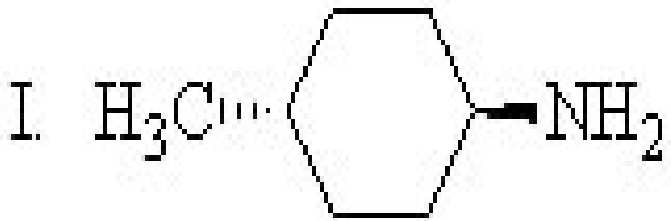
d. 4

Q 17

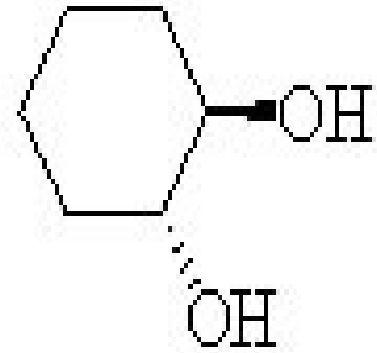
Which structures are chiral?

a. I, III, IV
b. II, III, IV
c. I, II and III
d. I, II and IV

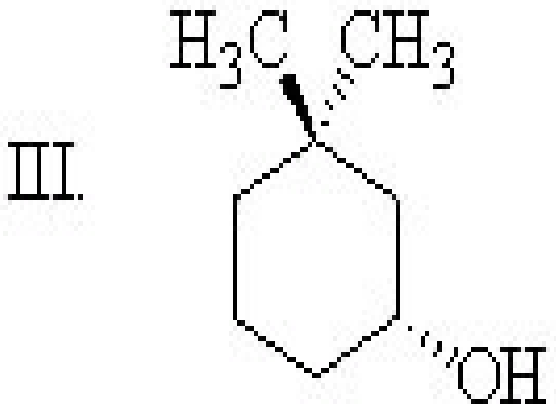
I.



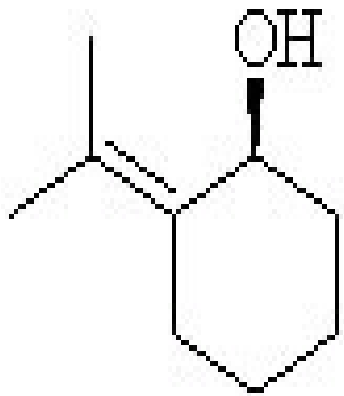
II.



III.



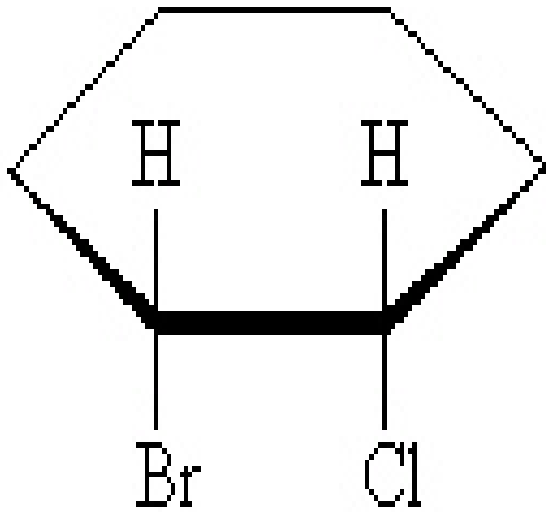
IV.

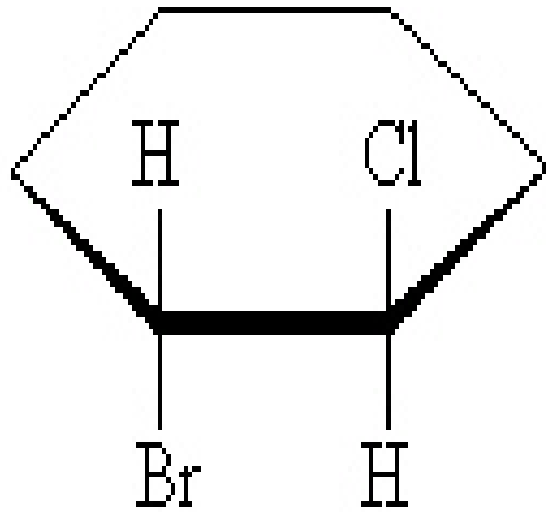


Q 18

What is the relationship between these two structures?

a. identical structures
b. enantiomers
c. diastereomers
d. constitutional isomers





Q 19

How many pairs of enantiomers are possible for cortisone acetate?

a. 256
b. 128
c. 64
d. 32

Answer: d