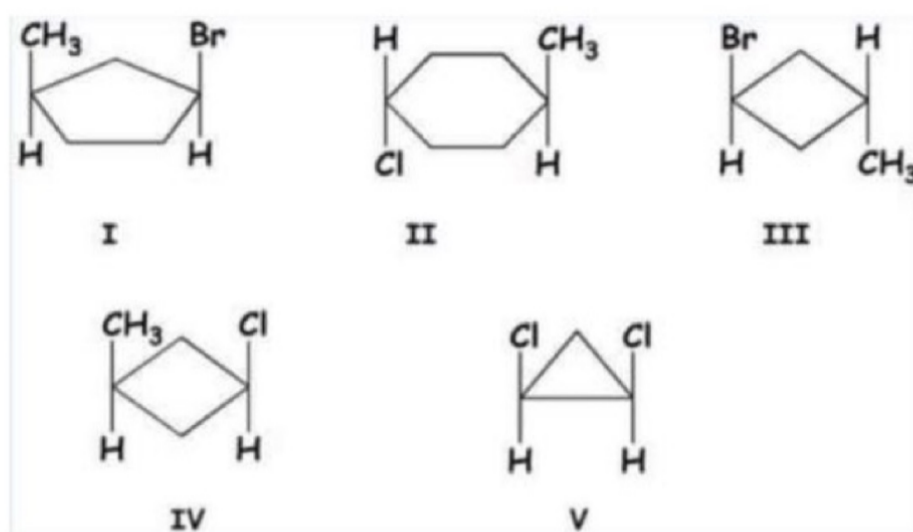
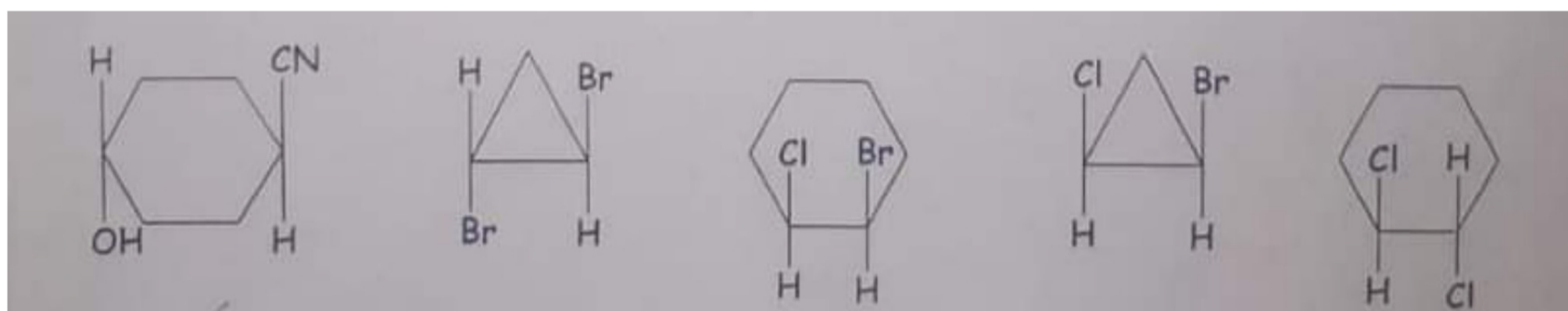


1) Which of the following compounds is chiral?

- A) I
- B) II
- C) III
- D) IV
- E) V



2) Which of the following compounds is achiral?

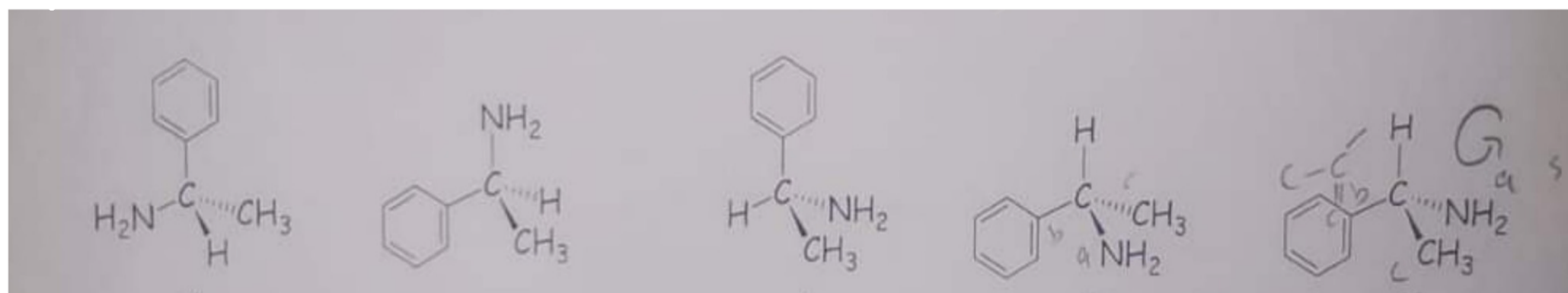


- a)
- b)
- c)
- d)
- e)

3) Which of the following compounds is never chiral?

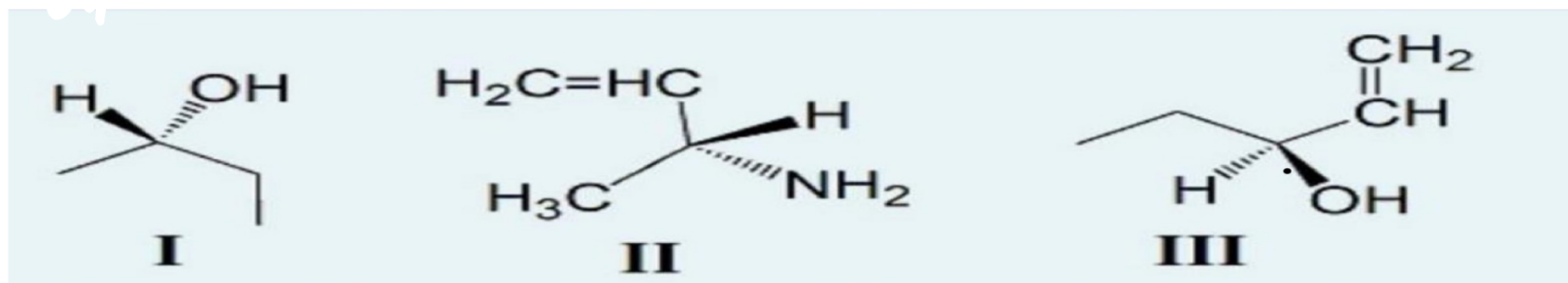
- A) 1-cyclopropyl-2-fluoro-butane
- B) 2,3-dicyclopropylbutane
- C) Butane-1,2-diol
- D) 1,4-diiodobutane
- E) 1,3-difluorobutane

4) Which of the following compounds has R-configuration?



- a)
- b)
- c)
- d)
- e)

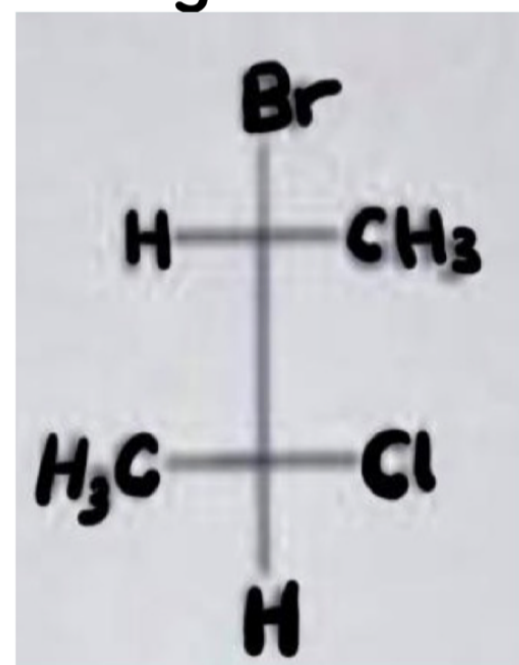
5) Which molecule has (S)-configuration?



- A) II only
- B) I only
- C) I and III
- D) I and II
- E) III only

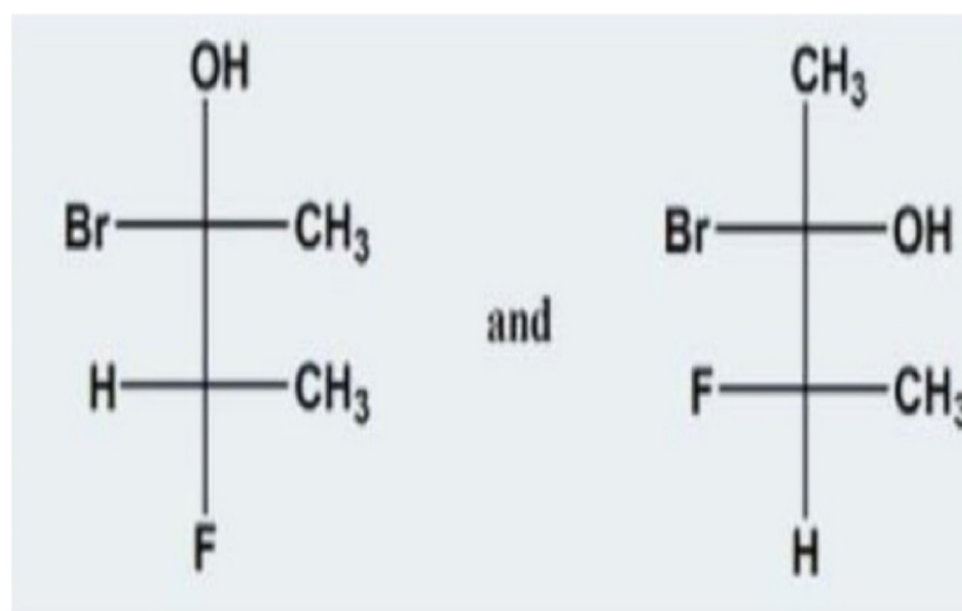
6) What is the correct name of the following molecule?

- A) (2R,3R)-2-bromo-3-chlorobutane
- B) (2S,3R)-2-bromo-3-chlorobutane
- C) (2S,3S)-2-bromo-3-chlorobutane
- D) racemic-2-bromo-3-chlorobutane
- E) (2R,3S)-2-bromo-3-chlorobutane

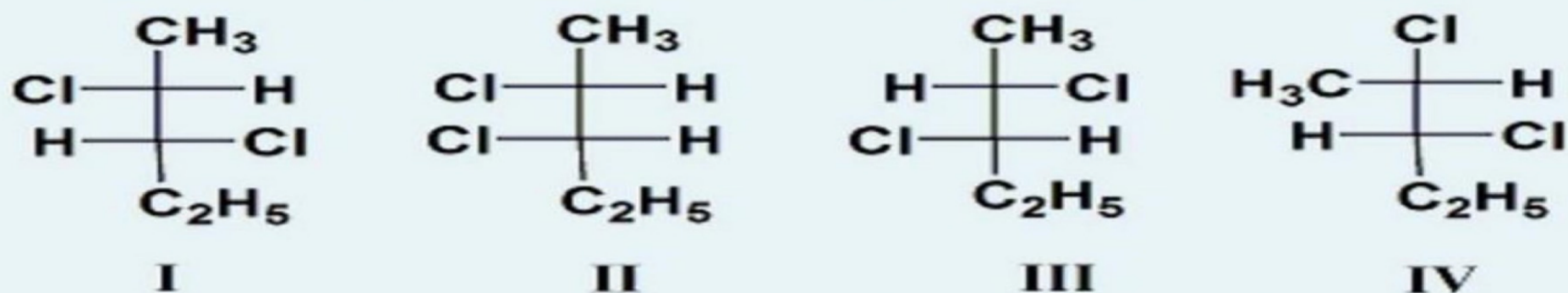


7) What is the relationship between these two compounds?

- A) diastereomers
- B) Enantiomers
- C) identical
- D) constitutional isomers
- E) conformations



8) Which structures are pair of Enantiomers?



- A) II and IV
- B) I and III
- C) I and II
- D) I and IV
- E) II and III

9) Which of the following statement is correct?

- a) Enantiomers are superimposable mirror images.
- b) Enantiomers have the same melting points.
- c) Meso structures is optically active.
- d) Stereogenic center carbon atom could be  $sp^2$  hybridized.
- e) diastereomers have opposite signs of specific rotation.

10) Which of the following is true about Enantiomers?

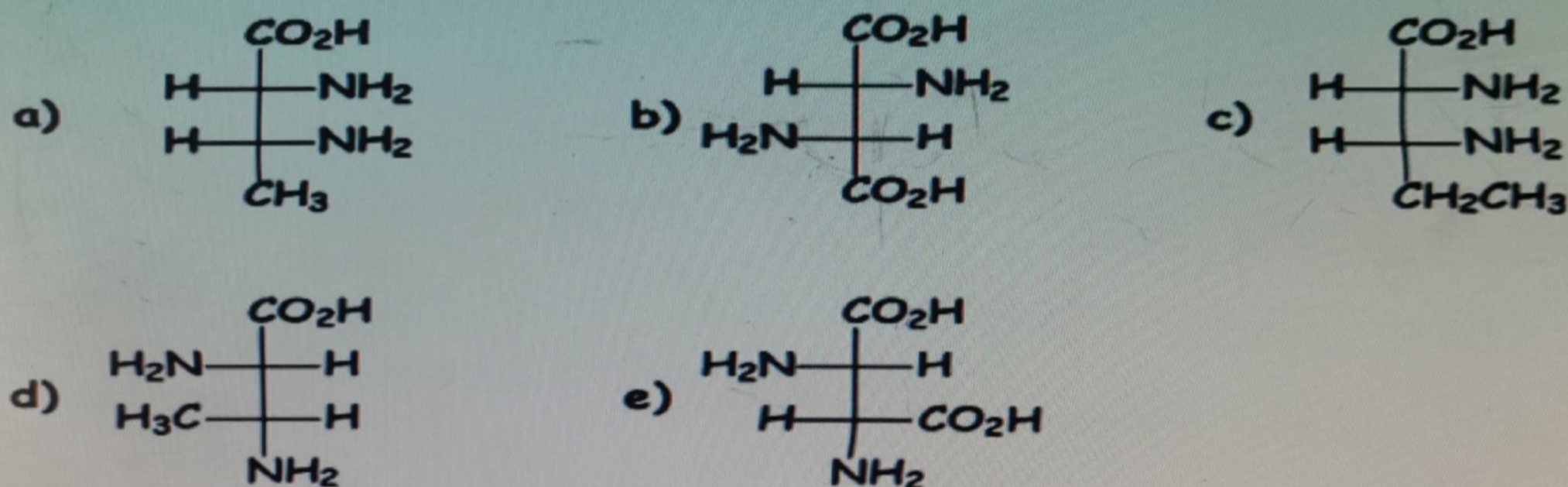
- A) They can be converted to each other by rotation around c-c bond.
- B) They can be separated by simple physical methods.
- C) They have different melting and boiling point.
- D) They differ in the direction of rotation of plane polarized plane.
- E) They have some chemical behavior towards chiral reagents.



15) Assume that (2S,3S)-2,3-dichlorobutane has a specific rotation of +14. What would be the specific rotation of the (2R,3R)-2,3-dichlorobutane:

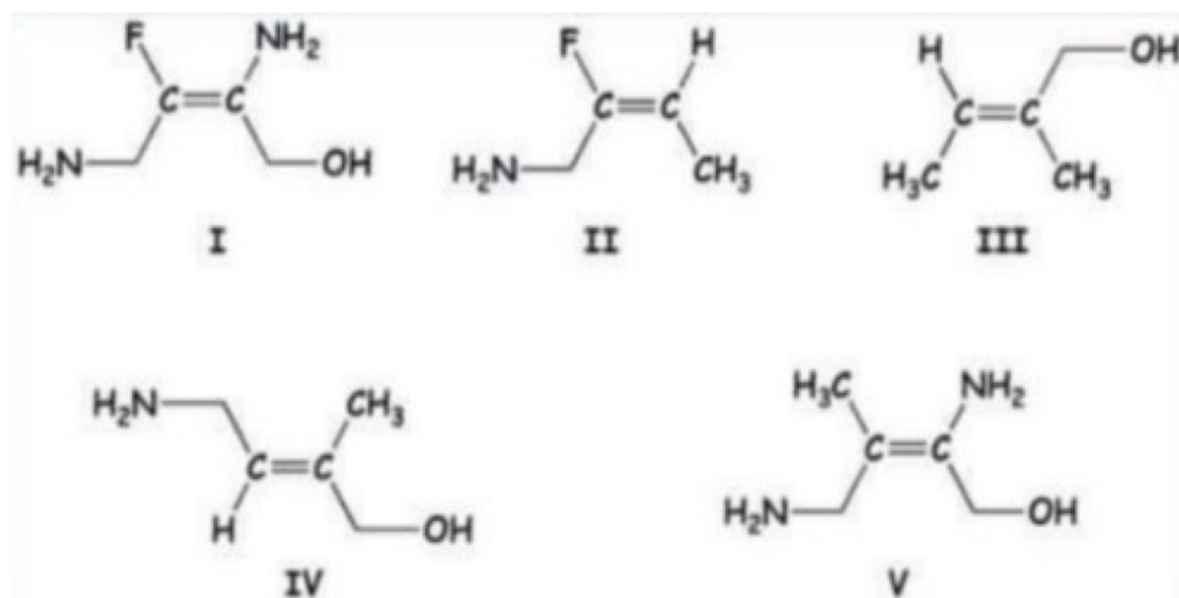
- A) +14
- B) 0
- C) +7
- D) -14
- E) +28

16) Which of the following is a meso compound?

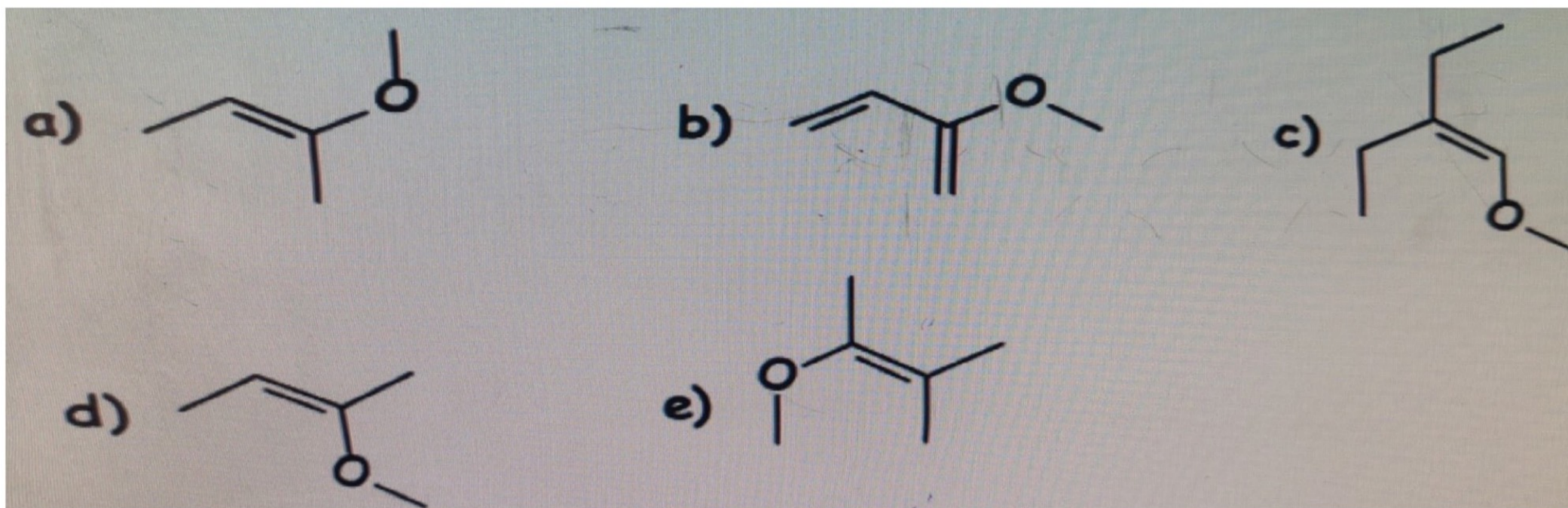


17) Which of the following alkenes has Z-configuration? (Atomic number H=1; C=6; N=7; O=8; F=9):

- A) IV
- B) V
- C) II
- D) III
- E) I



18) Which of the following Alkenes has E-configuration?  
(Atomic number H=1; C=6; O=8)

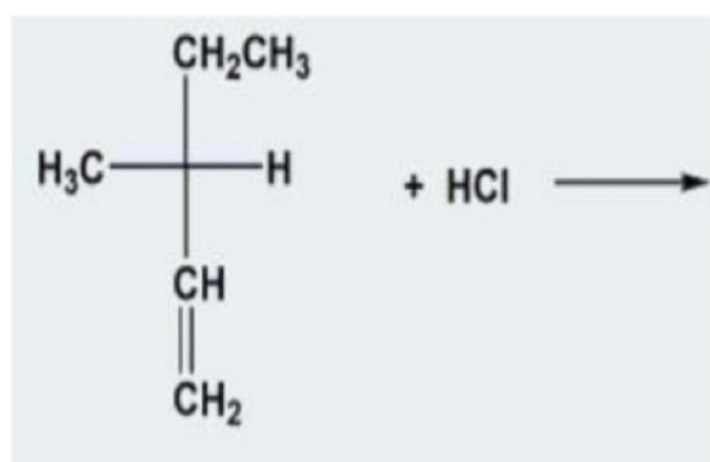


19) Which of the following is true about diastereomers?

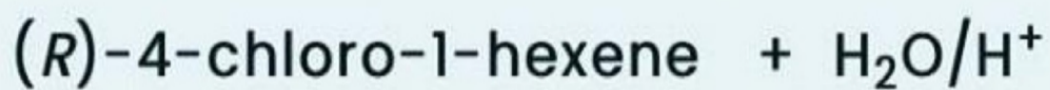
- A) They have same chemical properties but different physical properties
- B) Their molecules have superimposable mirror images
- C) They should have no chiral centers
- D) They have different physical and chemical properties
- E) They react similarly with achiral reagents

20) The product(s) obtained from the following reaction is:

- A) pair of diastereomers
- B) racemic mixture
- C) meso compound
- D) pair of enantiomers
- E) achiral



21) What describes the nature of the major addition product of the following reaction?



- A) optically active mixture of two diastereomers.
- B) optically inactive mixture of equal amounts of enantiomers.
- C) optically active mixture of two Enantiomers in unequal amounts.
- D) optically inactive mixture of equal amounts of diastereomers.
- E) optically inactive meso-form product.

1	2	3	4	5	6	7
a	a	d	e	c	e	b

8	9	10	11	12	13	14
b	b	d	b	c	d	d

15	16	17	18	19	20	21
d	e	E	a	d	a	a