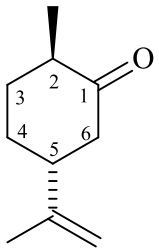
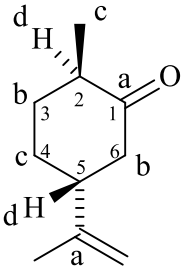
Marks 7

- Consider the structure of dihydrocarvone shown below.



Assign the absolute configuration of dihydrocarvone. Explain your reasoning.



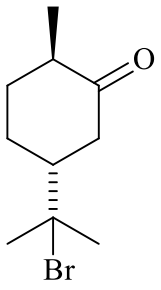
C_2: (*R*)
Around C_2, the order of priorities is:
a: C_1(O,O,C) > b: C_3(C,H,H) > c: C_{methyl}(H,H,H) > d: H

Looking down C_2–H bond, a → b → c is clockwise

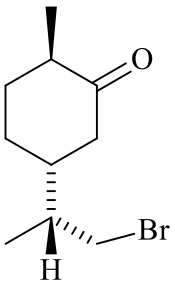
C_5: (*R*)
Around C_5, the order of priorities is:
a: C(C,C,C) > b: C_6(C,H,H) > c: C_4(C,H,H) > d: H

As C_4 and C_6 are equivalent, C_1 > C_3 is used to prioritise them.
Looking down C_5–H bond (*i.e.* out of paper), a → b → c is clockwise

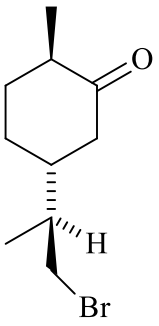
Draw all of the products that can result from the electrophilic addition of HBr to dihydrocarvone and explain the isomeric relationship between each pair.



A



B



C

A and B are constitutional isomers. A and C are constitutional isomers. B and C are diastereoisomers.