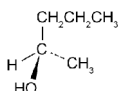
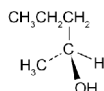
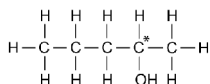


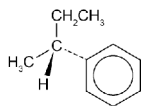
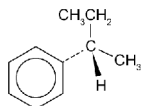
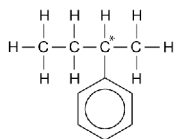
Stereoisomerism Answers

- 1 (a) A chiral carbon atom is one that is bonded to four different groups.
- (b) Optical isomers are isomers that differ in their rotation of the plane of plane-polarized light.
- (c) Enantiomers are the two possible isomers of an asymmetric molecule.
- (d) A racemate is a mixture of equal quantities of the *R*(*d*) and *S*(*l*) forms of an optically active compound.
- (e) Plane-polarized light is light in which the oscillation of the electric field only occurs in one direction.

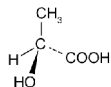
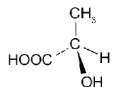
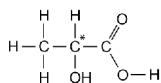
2 (a)



(b)



(c)



- 3 (a) The processes which occur in our bodies are catalysed by enzymes. These enzymes have a specific three-dimensional shape. Therefore, drug action is also controlled by the three-dimensional shape of the pharmaceutical molecule. It is often the case that one enantiomer of a molecule will have a positive therapeutic effect while the other enantiomer may have no effect or cause side effects.
- (b) Patients will need half the dose of the drug if it is optically pure. They are less likely to suffer from side effects. It may be cheaper for a smaller dose of the drug although this is not always the case as production of an optically pure molecule may be expensive.