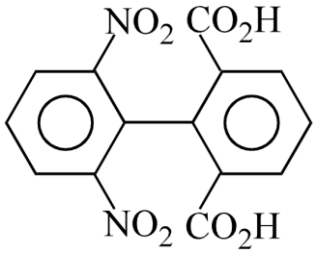
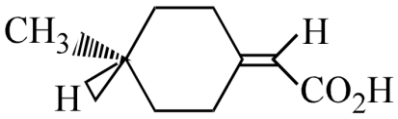
DPP-03

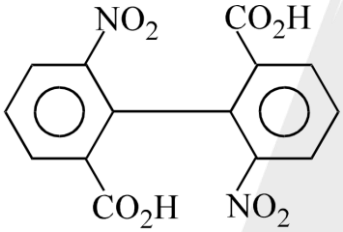
1. (+)-mandelic acid has a specific rotation of 158°. What would be the observed specific rotation of a mixture of 25%(−)-mandelic acid and 75%(+)-mandelic acid :

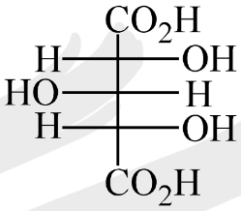
(A) +118.5° (B) −118.5° (C) −79° (D) +79°

2. Which of the following compounds is(are) optically active :

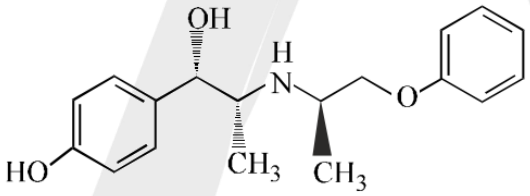
(A) 

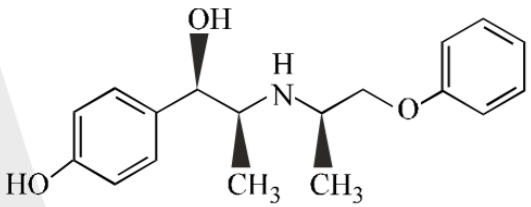
(B) 

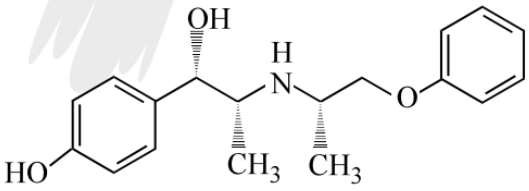
(C) 

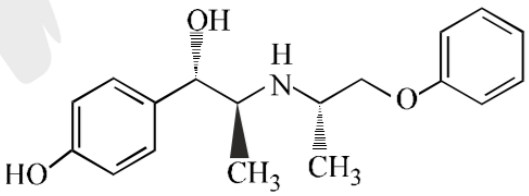
(D) 

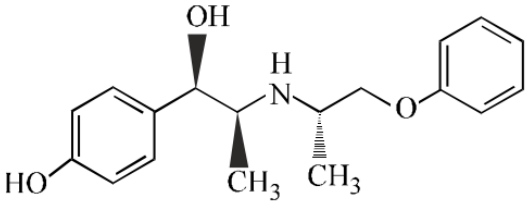
3. Consider the following six structures:

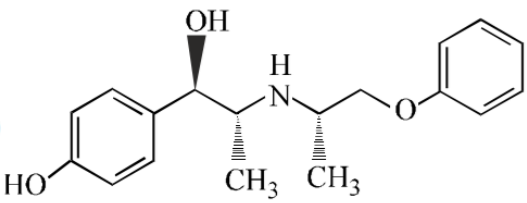
(I) 

(II) 

(III) 

(IV) 

(V) 

(VI) 

How many stereochemical relationship are correct :

(a) I and II : distereomers

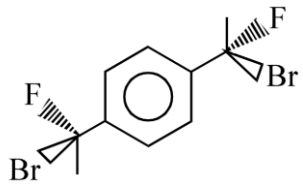
(b) III and IV : distereomers

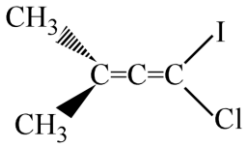
(c) II and III : enantiomers

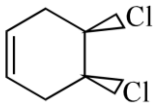
(d) I and V : distereomers

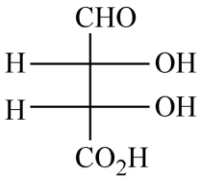
(e) IV and (VI) : enantiomers

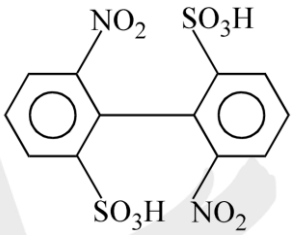
4. How many of following compounds are chiral :

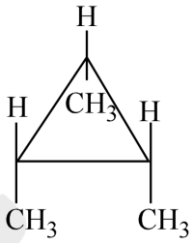
(a) 

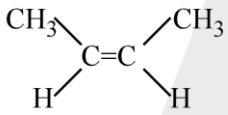
(b) 

(c) 

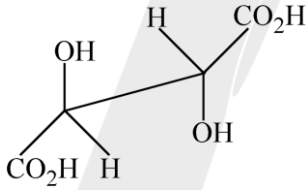
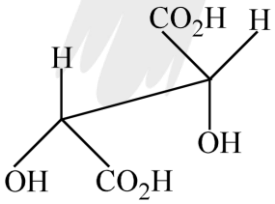
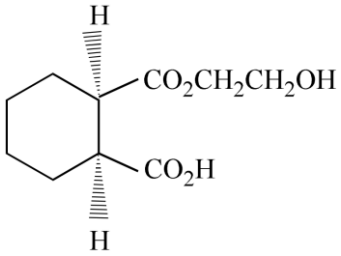
(d) 

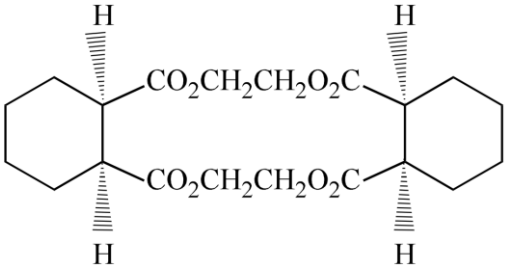
(e) 

(f) 

(h) 

5. Match the column:

Column I (Compounds)	**Column II (Properties)**
(A) 	**(P)** Chiral
(B) 	**(Q)** Achiral
(C) 	**(R)** Meso

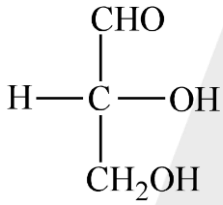
(D) 

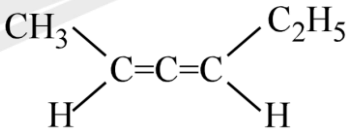
(S) Compounds containing even number of chiral Center

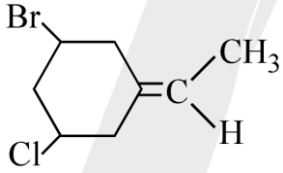
Paragraph for Q.4 to Q.6

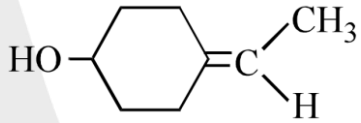
Isomers which are non super-imposable mirror images of each other are called enantiomers. All optically active compounds exhibit enantiomers. The stereoisomers which are not mirror images of each other are called diastereomers. Enantiomers are always chiral molecules whereas diastereomers may or may not be chiral, configuration of the compound having no element of symmetry is always chiral. Chiral molecule may or may not contain chiral carbon.

6. Which of the following compounds are chiral :

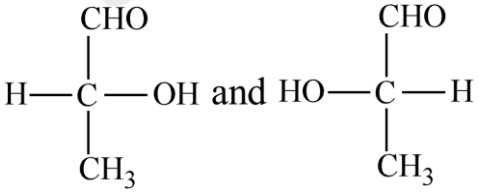
(A) 

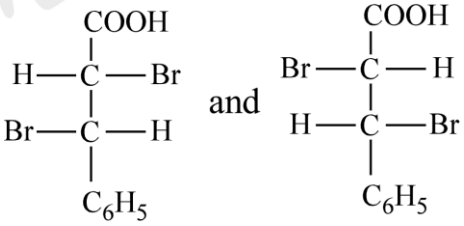
(B) 

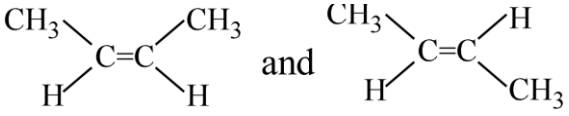
(C) 

(D) 

7. Which of the following pairs are diastereomers :

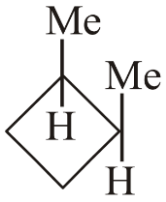
(A) 

(B) 

(C) 

(D) All of these

8. Correct statement about this compound is (are) :



(A) It shows geometrical isomerism

(B) It posses centre of symmetry

(C) It posses plane of symmetry

(D) It shows optical isomerism

9. Find the value of $(w + z) - (x + y)$

Total number of stereoisomer

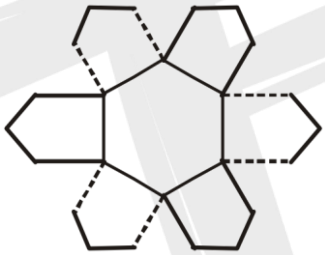
(i) 1,2-dichlorocyclopropane = w

(ii) 1,3-dimethyl-cyclobutanes = x

(iii) 2-bromo-3-chlorobutane = y

(iv) 1,3-dimethyl cyclohexane = z

10. True statement about this compound (6,5) Coronane is(are) :



(A) It is having C_3 axis of symmetry

(B) It is having C_6 axis of symmetry

(C) It is having S_3 alternative axis of symmetry

(D) It is having S_6 alternative axis of symmetry