ACTIVITY #9 – ANSWERS to SELECTED QUESTIONS

Q#20 achiral: meso-tartaric acid & 

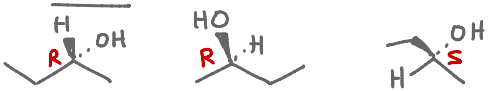
Q#21 meso: both achiral molecules in Q#20

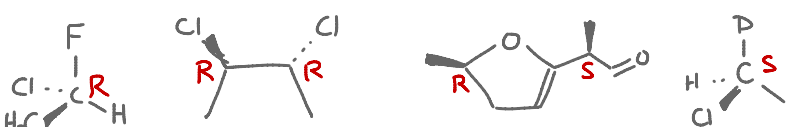
Q#22 A: trans B: trans C: cis & meso
D: trans E: cis

Q#24 A ≠ B

Q#25 B & C → diastereomers A & C → diastereomers
D & E → diastereomers A & D → constitutional isom.
A & E → constitutional isom. A & B → enantiomers

Q#28 F. E & Z alkenes are diastereomers & both can be achiral.

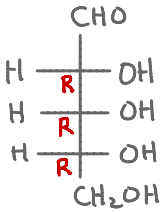
Q#35 

Q#36 

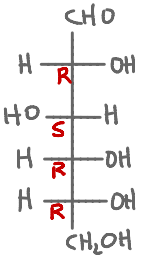
Q#37 The configurations of ALL chiral atoms switch in the enantiomer. R → S & S → R.

ACTIVITY #9 - ANSWERS cont'd

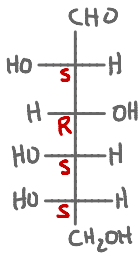
Q#38



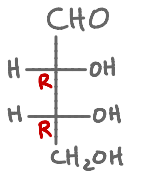
Q#39



D-glucose



L-glucose



D-erythrose

Q#40 4 (R,R), (R,S), (S,R), (S,S)

Q#41 $n=4$ $2^4 = 16$ stereoisomers (including D-glucose)

Q#42 $n=2$ (= 1 chiral center + 1 E/Z π bond) $2^2 = 4$ stereoisomers

Q#9 $\alpha_D = -12°$ for (-)-tartaric acid

Q#10a Polarized light is rotated in different directions by (+) & (-) enantiomers. Pasteur's solution was <u>racemic</u> so the effect of one enantiomer was exactly offset by the effect of the other.

Q#10c enantiomers ('mirror images' is not as precise because some mirror images are achiral and are not optically active)