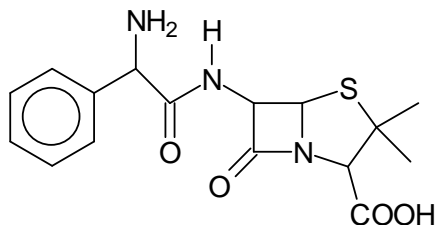


MARK ONE ANSWER FOR EACH QUESTION ON BOTH THE EXAM AND YOUR SCANTRON!

1. How many chiral centers does ampicillin have?

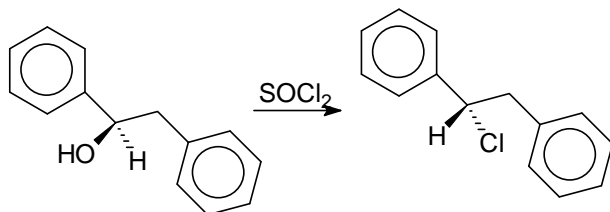


A. 3    B. 4    C. 5    D. 6    E. 7

2. The alkaloid (*S*)-coniine shows a specific angle of rotation of  $+15.7^\circ$ . What angle of rotation do you measure for a solution containing a mixture of one gram of the *S* enantiomer and one gram of the *R* enantiomer in 10 mL solvent, placed in a 2 cm long cell? (4 pts)

A. approx.  $+0.27^\circ$     B. approx.  $-2.7^\circ$     C. approx.  $+6.76^\circ$     D.  $0^\circ$     E. approx.  $-0.27^\circ$

3. What can we say about the reaction below? It only generates one organic product.



1,2-diphenylethanol

- A. This reaction proceeds with inversion of configuration
- B. This reaction proceeds with retention of configuration
- C. This reaction proceeds with racemization
- D. 1,2-Diphenylethanol is prochiral in this reaction
- E. This is an example of chiral induction

Key:

1 B  
2 D  
3 A