SAMPLE MIDTERM 2
CHEM 109C

A (VERY) ABRREVIATED VERSION
FOR ILLUSTRATION ONLY

NAME:

Perm Number:
1. An acid catalyst functions by donating __________ to a substrate

   A. a proton
   B. an electron pair
   C. a nucleophile
   D. an electron
   E. a molecule of water

2. Which of the following amino acids can form a disulfide bridge in peptides?

   A. alanine
   B. methionine
   C. tryptophan
   D. cysteine
   E. pyridine
3. The substrate is fully deprotonated before the slow step of the reaction.  
   This statement best defines:

   A. Nucleophilic catalysis
   B. General base catalysis
   C. Specific base catalysis
   D. Non-specific base catalysis
   E. none of the above

4. What product is formed when Ala-Met-Pro is treated with cyanogen bromide?

   ![Chemical structures A to E](image-url)
Provide the product and the mechanism for the following reaction

\[
\text{isocitrate} + \text{NAD}^+ \rightarrow \text{product}
\]