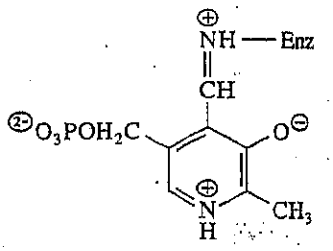
BIOSC 1820
Metabolic Pathways and Regulation
Spring, 2010
Prof. Jeffrey L. Brodsky
Quiz #4
March 24, 2010

NAME: _____

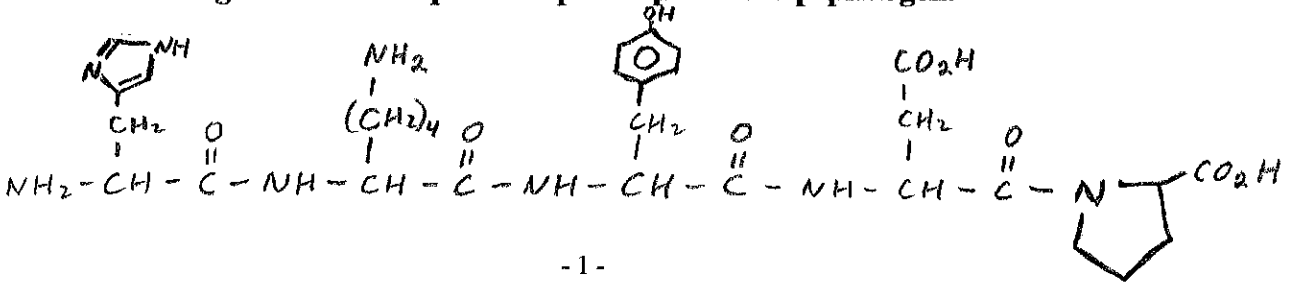
1. What is the name of the following cofactor? (do not simply state the name of the vitamin)



2. Draw the structure of the amino acid to which the cofactor/vitamin shown above is usually conjugated in an enzyme (you don't need to include the structure of the cofactor):

3. In which specific cells are amino acids absorbed in the digestive system?

4. The following amino acid sequence depicts a portion of pepsinogen.

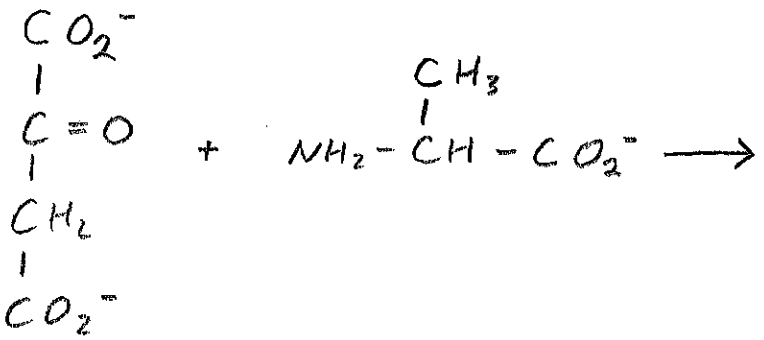


A. What is the name of the enzyme that cleaves and thus activates pepsinogen?

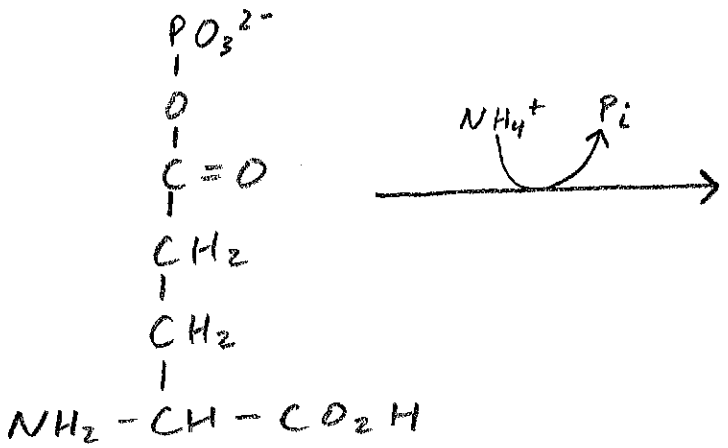
B. Draw an arrow in the sequence given above (question #4) that shows where this enzyme will cleave the peptide into two smaller peptides.

5. Draw the structures <u>and</u> give the names of the products of the following reactions:

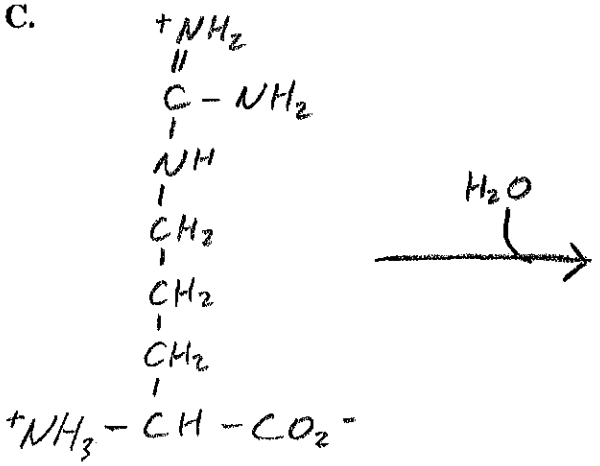
A.



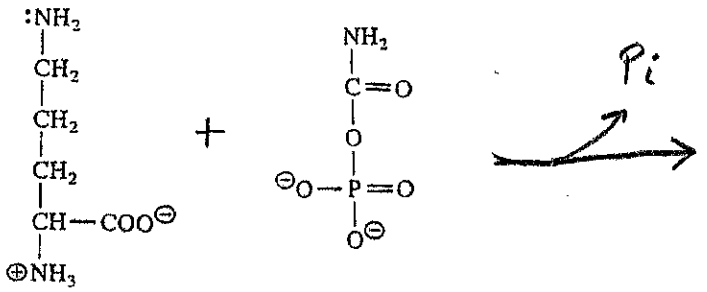
B.



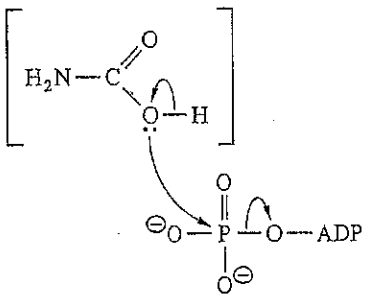
C.



D.

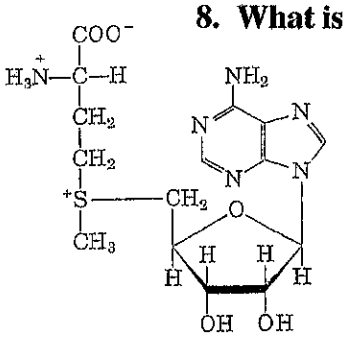


6. The following is an intermediate in the reaction catalyzed by which enzyme?



7. What is the name of the enzyme that is defective in individuals who suffer from phenylketonuria?

8. What is the proper/full name of the following molecule? What is it used for?



9. How does the 19S "cap" of the proteasome catalyze the degradation of ubiquitinated proteins?

10. Draw the structure of the amino acid on ubiquitin activating enzymes and on ubiquitin conjugating enzymes that becomes covalently attached to ubiquitin:

11. What are the two major precursors that accumulate in individuals with urea cycle disorders?

And, for the grand prize (i.e., one candy bar), provide a pneumonic for the intermediates in the Urea Cycle (the winner who makes us laugh the most will be announced at class next week):