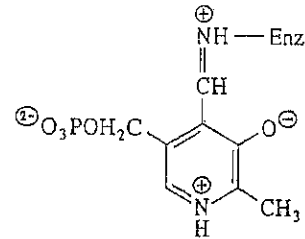


BIOSC 1820
 Metabolic Pathways and Regulation
 Spring, 2011
 Prof. Jeffrey L. Brodsky
 Quiz #4
 March 21, 2012

NAME: KEY

1. What is the FULL NAME of the following cofactor?

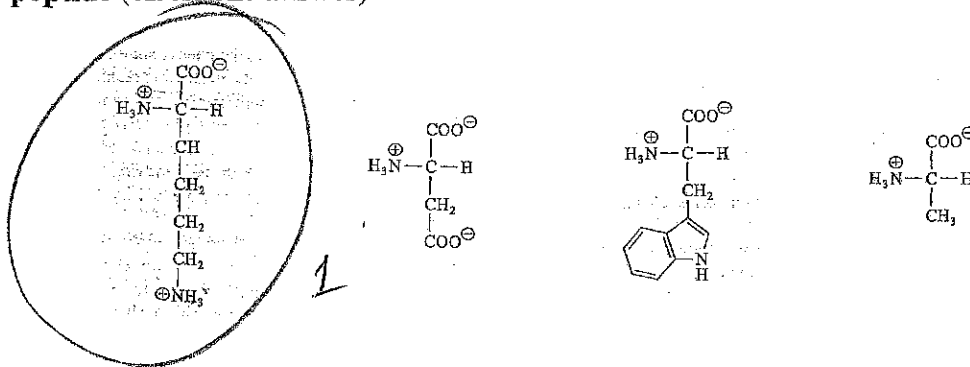
Pyridoxal
Phosphate 1



2. In the following peptide, where would chymotrypsin cut? (indicate the answer with an arrow)

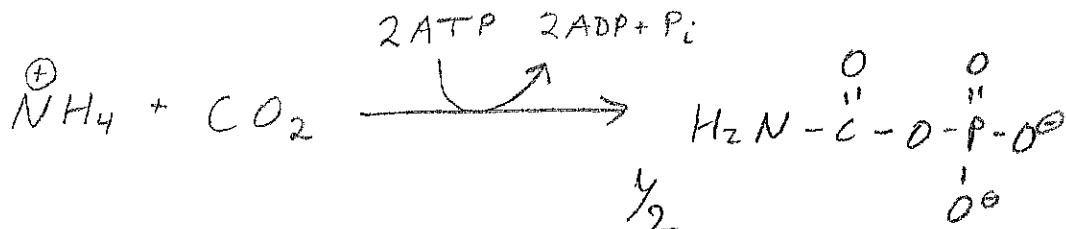
(N terminus) A - E - Y - T - V - K - G - A - D - G (C terminus) 1

3. Trypsin would cut C-terminal to which of the following amino acids within a peptide (circle one answer)



4. Draw the structures AND give the names of the products of the following reactions:

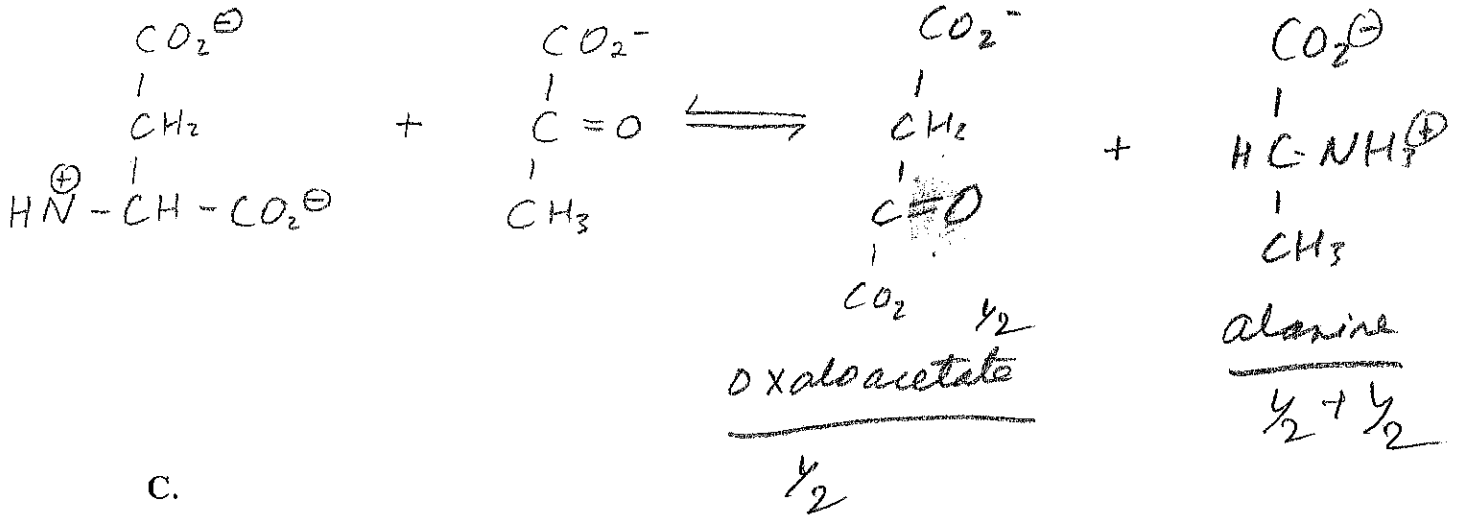
A.



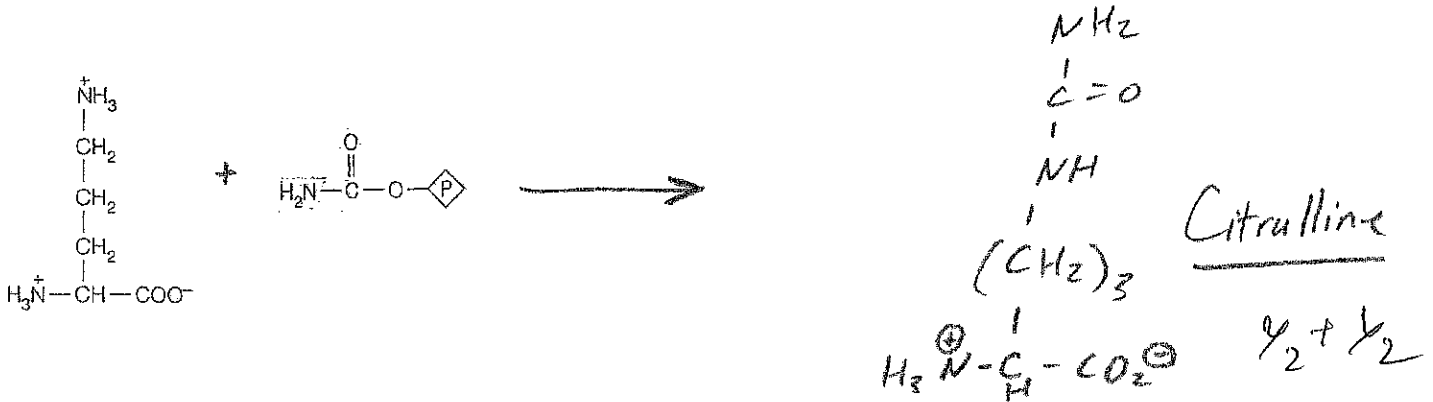
-1- $\frac{1}{2}$ Carbamoyl phosphate

B.

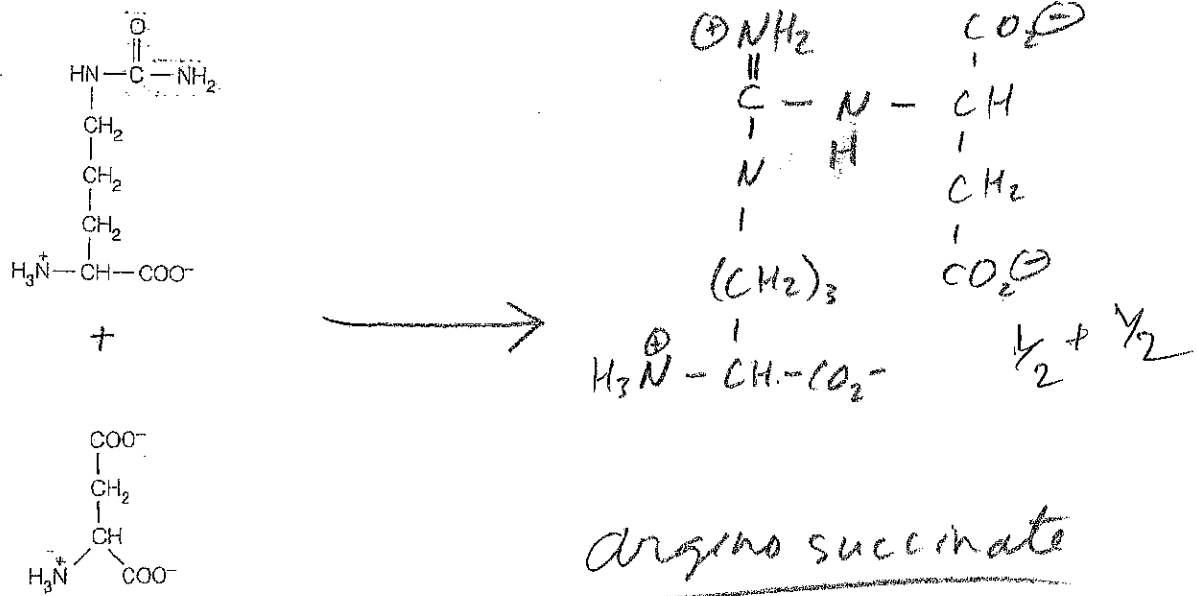
(two products-double credit)



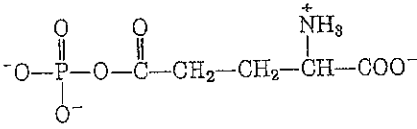
C.



D.



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



glutamine synthetase

1

5. What is the name of the hormone that leads to the secretion of bicarbonate from the pancreas and into the small intestine?

Secretin 1

6. Each of the following leads to an increase in flux through the Urea Cycle, except:

A. An increase in protein in the diet

B. Starvation

C. A decrease in the level of arginine

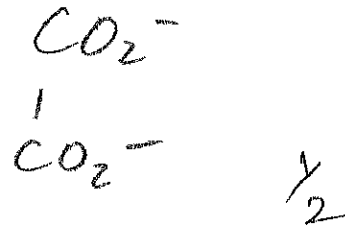
D. An increase in the amount of N-acetylglutamate

E. None of the above—each of these leads to increased flux through the Cycle

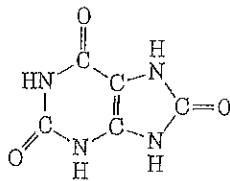
1

7. Draw the structure AND give the name of the glycine by-product that can accumulate in the body and gives rise to kidney stones:

Oxalate
1/2



8. What is the name of the following molecule?



uric acid

1

9. What is the full name of the enzyme that forms a transient AMP derivative with ubiquitin and then transfers the ubiquitin to the next enzyme in this protein-tagging cascade?

ubiquitin activating enzyme
1

10. Which do you think is a more effective treatment for a urea cycle disorder: a very low protein diet or treatment with a compound such as sodium-phenylbutyrate? Why?

A very low protein ^{diet} has undesirable consequences on the growth of a child, but the drug can deplete toxic ammonia & nitrogen-rich compounds with less diet restrictions. 1

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

1/15