

CHEM 375 CLASS TEST #1 - SAMPLE QUESTIONS

NOTE THAT: (1) QUESTIONS ARE NOT LIMITED TO THOSE PRESENTED IN THIS QUESTIONNAIRE
(2) YOU WILL SEE ADDITIONAL QUESTION FORMATS ON THE EXAM, AND/OR A GREATER NUMBER OF QUESTIONS IN THE FORMATS GIVEN BELOW.

A. MULTIPLE CHOICE QUESTIONS (1 point each question)

(1) During heavy exercise, what is the chronological order of metabolic energy usage in muscle tissue (left = earlier, right = later):

- (a) ATP, creatine phosphate, anaerobic metabolism, aerobic metabolism
- (b) ATP, creatine phosphate, aerobic metabolism, anaerobic metabolism
- (c) anaerobic metabolism, creatine phosphate, ATP, aerobic metabolism
- (d) creatine phosphate, ATP, anaerobic metabolism, aerobic metabolism
- (e) aerobic metabolism, ATP, anaerobic metabolism, creatine phosphate

(2) The pentose phosphate pathway is most tightly integrated with which metabolic pathway in mammals:

- (a) glycolysis
- (b) TCA cycle
- (c) tricarboxylate transport pathway
- (d) fatty acid oxidation
- (e) fatty acid elongation

(3) Ribose 5-phosphate is required for the synthesis of:

- (a) DNA, ATP, FAD
- (b) triacylglycerol, fatty acids, prostaglandins
- (c) glucagon, insulin, epinephrine
- (d) amino acids, proteins, peptides
- (e) TPP, biotin, cobalamin

(4) Which one of the following vitamins is required for biosynthesis of coenzyme A:

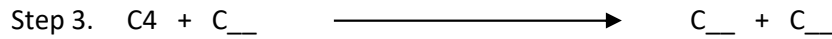
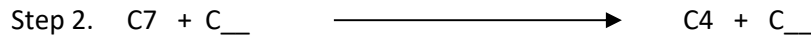
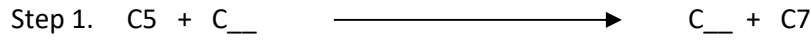
- (a) thiamine
- (b) niacin
- (c) pantothenic acid
- (d) cobalamin
- (e) riboflavin

(5) Amphibolic reactions are :

- (a) Oxidations-reductions
- (b) Used in both catabolism and anabolism
- (c) Catabolic reactions
- (d) Anabolic reactions
- (e) None of the above

B. FILL IN THE BLANKS

1. (5 points) Shown below are reactions of Phase 2 (non-oxidative) of the pentose phosphate pathway resulting in the production of glycolytic intermediates. Fill in the blanks to indicate the number of carbons in the various substrates and products. Also, above each arrow write in the name of the enzyme catalyzing that step.



C. IDENTIFY THE FOLLOWING STRUCTURES AND CIRCLE THE REACTIVE PART OF THE MOLECULE

1 point each

