Corrected 5.29.2012

Key Terms: Fill in the blank in the following 10 statements with one of the key terms in the table. Each key term may only be used once. Print legibly. Each question is worth 1 point.

D-amino acids	Apoenzyme	Primary	Transition state
L-amino acids	Coenzyme	Secondary	Macronutrients
Metabolism	Tertiary	Catabolism	Essential amino acids
Nucleotide	Micronutrients	Holoenzyme	Enzyme-substrate
Heterocyclics	Complete protein	Nucleoside	Bioenergetics

1. 10 amino acids are considered _____, because they are needed for good health and cannot be synthesized in the human body.

2. Only _____ are found in proteins.

3. The _____ structure of a protein is the amino acid sequence of that protein.

4. A _____ consists of both the protein and nonprotein parts.

5. The _____ is a high-energy state that a reactant must pass through to be converted into a product.

6. _____ are molecules that contain carbon and one or more other elements in their ring structure.

7. A _____ consists of a nitrogen base, a sugar, and at least one phosphate group.

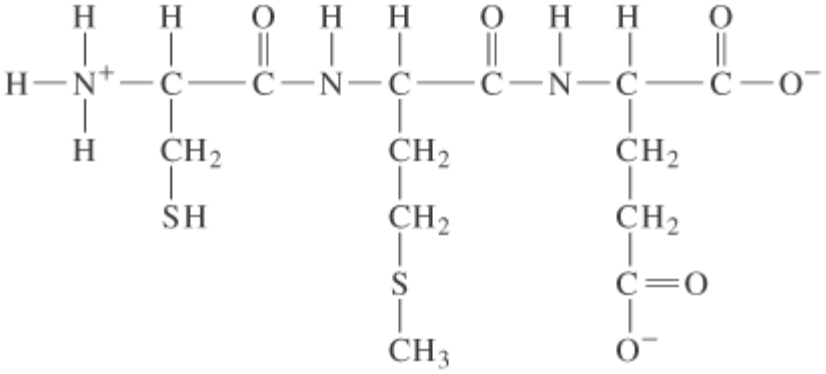
8. A _____ contains all the essential amino acids.

9. Vitamins are classed as _____.

10. _____ is the sum of all chemical reactions that occur within a living organism.

Multiple Choice: Each of the following 20 multiple choice questions is worth 2 points. Please circle the best answer. There will only be one correct answer for each question.

11. Identify the correct designation for this tripeptide:



a) Cys-Met-Glu b) Cys-Met-Asp
c) Met-Cys-Glu d) Asp-Cys-Met

12. Fibrous proteins contain highly developed _____ structure.
a) secondary b) binding protein c) tertiary d) quaternary

13. Which of the following is a function of oxytocin?
a) muscle contraction b) raise blood pressure
c) reduce pain d) antidiuretic

14. Which of the following is used to test for proteins containing a benzene ring?
a) Biuret Test b) Xanthoproteic Test
c) Ninhydrin Test d) Sanger's Test

15. The following person observed that enzymes have a maximum velocity:
a) Edward Buchner b) Louis Pasteur
c) Francis Crick d) Leonor Michaelis

16. An increase in temperature can affect an enzyme-catalyzed reaction by:
a) increasing the reaction rate
b) decreasing the reaction rate
c) both increasing and decreasing the reaction rate
d) causing a different substrate to be used

17. "The substrate molecule must change its shape in order to fit into the active site" This statement describes:
a) the induced fit model of enzyme activity.
b) the lock and key model of enzyme activity.
c) the productive binding hypothesis.
d) the strain hypothesis.

18. The induced-fit model states that the substrate adjusts its shape to fit the enzyme active site.
a) True b) False

19. Translation refers to the process whereby:
a) RNA is synthesized
b) DNA is reproduced
c) protein is synthesized
d) all of these

20. Which enzyme is used to replicate the DNA from a very small sample?
a) restriction exonucleases
b) proteases
c) DNA polymerase
d) DNA hydrolase

21. Which of the following is used in chemotherapy?
a) deoxyuridine
b) restriction enzymes
c) 5-fluorouracil
d) N-formyl methionine

22. Which of the following statements is FALSE?
a) There are 64 codons for that translate mRNA to amino acids.
b) Methionine is always the first amino acid coded during translation.
c) Methionine and Tryptophan have one codon each.
d) There are 3 nonsense codons that do not code for any amino acids.

23. Complete hydrolysis of RNA could yield uracil, phosphoric acid, ribose, and thymine.
a) True
b) False

24. Zinc, copper, and cobalt are examples of:
a) vitamins
b) major elements
c) trace elements
d) none of these

25. People need to drink the following amount of water each day:
a) 500–1,000 mL
b) 2,000–3,000 mL
c) 5,000–10,000 mL
d) 250–500 mL

26. Which of the following is a fat soluble vitamin?
a) Vitamin B_1
b) Vitamin B_{12}
c) Vitamin C
d) Vitamin D

27. A meal of beans and rice provides a complete protein.
a) True
b) False

28. The following organelle contains many of a cell's digestive enzymes:
a) mitochondrion
b) nucleus
c) lysosome
d) peroxisome

29. Which of the following does *not* have a high-energy phosphate bond?
a) ATP
b) NADPH
c) phosphocreatine
d) 1,3-diphosphoglycerate

30. Catabolic reactions usually involve:
a) carbon oxidation and produce energy from the cell
b) carbon oxidation and consume cellular energy
c) carbon reduction and produce energy from the cell
d) carbon reduction and consume cellular energy