

Human Nutrition – Exam #1

1. Which of the following is a macronutrient?
  - a) Vitamin A
  - b) Selenium
  - c) Protein**
  - d) Antioxidants
2. Which of the following provides the body with zero Calories per gram?
  - a) Carbohydrates
  - b) Protein
  - c) Lipids
  - d) Water**
3. When scientists use the word “calorie”, what are they referring to?
  - a) One gram of fat
  - b) One gram of carbohydrates
  - c) Enough energy to raise the temperature of one gram of water by one degree Celsius.**
  - d) 10 grams of fat
4. According to established scientific definitions, how many calories are in one nutritional “Calorie”?
  - a) 1
  - b) 10
  - c) 1000**
  - d) 20000
5. Which of the following is the leading cause of type II diabetes in the USA?
  - a) Overnutrition**
  - b) Vitamin A deficiency
  - c) Vitamin C deficiency
  - d) Iron deficiency
6. In a covalent bond, such as the bond between a hydrogen atom and a carbon atom in methane, which of the following is true?
  - a) One atom takes all the electrons from the other.
  - b) The carbon and the hydrogen share electrons more-or-less equally.**
  - c) The carbon atom gets a strong negative charge.
  - d) The carbon atom gets a strong positive charge.
7. Which of the following is a polar molecule?
  - a) H<sub>2</sub>O**
  - b) CH<sub>4</sub>
  - c) C<sub>2</sub>H<sub>6</sub>
  - d) C<sub>3</sub>H<sub>8</sub>

8. Which of the following is NOT necessary for a true double-blind study?
- The experimenter does not know which group each subject is assigned to.
  - The subjects do not know which experimental group they are assigned to.
  - Subjects are assigned randomly to their experimental groups.
  - The name of each subject must be known.**
9. Which of the following is NOT an advantage of the true double blind study design?
- It reduces bias in the experimenter
  - It reduces error that is caused by the placebo effect.
  - It ensures that all subjects give honest answers to all experimental questions.**
  - It is possible to compare any effects of the experimental treatment to the effects of non-treatment (or “control”).
10. Which of the following is a dietary guideline that is espoused by *both* the US Department of Health and Human Services and your humble professor?
- Cut out all fats.
  - Eat more protein.
  - Eat a wide variety of foods, especially vegetables.**
  - Eat plenty of antioxidants
11. Of the following dietary limits or guidelines, which will always be the highest for any single nutrient?
- RDA
  - AI
  - EAR
  - UL**
12. Of the following dietary guidelines, which is used mostly by health experts for national planning and large-scale statistical purposes?
- RDA
  - AI
  - EAR**
  - UL
13. Which of the following is used mostly for nutrients that have not been thoroughly studied?
- RDA
  - AI**
  - EAR
  - UL
14. A new soda (Sweet'n'Crunchy™) contains 1,000,000 grams of sugar per serving. One serving is equal to 8 ounces. The bottle contains 80 ounces. How many grams of sugar would you swallow if you drink the whole bottle?
- 500,000 g
  - 1,000,000 g
  - 2,000,000 g

- d) **10,000,000 g**
15. Which of the following is NOT an example of a carbohydrate?  
a) Starch  
b) Sucrose  
c) Glycogen  
d) **Cholesterol**
16. What defines all carbohydrates?  
a) **They all have the formula  $(CH_2O)_n$**   
b) They all contain carbon, hydrogen and only one oxygen.  
c) They all contain oxygen and nitrogen  
d) They are all made of long chains of sugars
17. Which of the following is NOT a monosaccharide?  
a) Glucose  
b) Galactose  
c) Fructose  
d) **Maltose**
18. Sucrose is actually composed of...  
a) **Glucose + Fructose**  
b) 2 Fructose molecules  
c) 2 glucose molecules  
d) Fructose and a lot of other industrial chemicals
19. Which of the following is a carbohydrate, AND is found in large quantities in a potato?  
a) **Starch**  
b) pure glucose  
c) pure fructose  
d) stearic acid
20. Which of the following is NOT a function of polysaccharides in human nutrition?  
a) Energy  
b) Fiber  
c) Prevents ketoacidosis  
d) **building enzymes**
21. Which form of carbohydrate does the human body use to store energy?  
a) Starch  
b) cellulose  
c) **glycogen**  
d) chitin
22. What happens when insulin is released by the pancreas?  
a) **The glucose levels in the blood go down.**  
b) The glucose levels in the blood go up.

- c) Glucagon is released by all the cells of the body.
  - d) Glucose is released by all the cells of the body.
23. Type I Diabetes Mellitus is a condition in which...
- a) the pancreas makes too much glucagon
  - b) the stomach cannot digest sugar.
  - c) the pancreas makes too much insulin.
  - d) **the pancreas makes little or no insulin**
24. Which of the following is a sugar alcohol?
- a) Glucose
  - b) stearic acid
  - c) **xylitol**
  - d) sucrose
25. Most dietary fiber is made of...
- a) **cellulose**
  - b) starch
  - c) chitin
  - d) glycogen
26. Which of the following is NOT a known advantage of including fiber in the diet?
- a) **Reduced risk of brain cancer.**
  - b) Prevents constipation and diarrhea
  - c) Reduces hunger by making you feel full longer.
  - d) Reduces risk of colon cancer
27. Which of the following is NOT a lipid?
- a) Fatty acids
  - b) Triglycerides
  - c) Cholesterol
  - d) **Polypeptides**
28. What do we get when we break down a triglyceride?
- a) **3 fatty acids and glycerol**
  - b) 3 fatty acids and glucose
  - c) 2 fatty acids and cholesterol
  - d) 2 fatty acids and glycerol
29. In an omega-3 fatty acid, where do we expect to see a double bond ?
- a) Between the 1<sup>st</sup> and second carbons from the end.
  - b) **Between the 3<sup>rd</sup> and 4<sup>th</sup> carbons from the end.**
  - c) Between the omega carbon and the alpha carbon
  - d) Between all of the carbons.
30. Which of the following is the most important function of phospholipids?
- a) Energy

- b) **Building cell membranes**
  - c) Building DNA
  - d) making hormones
31. Which of the following is a FALSE statement about cholesterol?
- a) The body produces cholesterol.
  - b) **Cholesterol is the most harmful kind of lipid in our diet.**
  - c) We use cholesterol to make some hormones
  - d) Cholesterol has a 4-ring structure.
32. Which of the following is the best source of omega-3 fatty acids?
- a) Steak
  - b) **fish**
  - c) pork
  - d) corn oil
33. Which of the following defines a trans fatty acid?
- a) Any fatty acid with a double bond in it.
  - b) Any fatty acid with no double bonds in it.
  - c) Any fatty acid with two carbon-chains on the same side of a double bond.
  - d) **Any fatty acid with two carbon-chains on opposite sides of a double bond.**
34. Which of the following kinds of chylomicron contains the most cholesterol?
- a) **A Very Low Density Lipoprotein**
  - b) A Low Density Lipoprotein
  - c) A Medium Density Lipoprotein
  - d) A High Density Lipoprotein
35. Which of the following is NOT found in all amino acids?
- a) An  $-NH_3$  group.
  - b) An organic acid group.
  - c) An "R" group.
  - d) **A chain of four carbons in a row.**
36. Which of the following is the definition of an essential amino acid?
- a) An amino acid that rids the body of toxins.
  - b) An amino acid that is very healthy to eat.
  - c) **An amino acid that the body needs but cannot make for itself.**
  - d) Any amino acid that the body uses to make proteins
37. Which of the following is an essential amino acid?
- a) Fatty acids
  - b) **Valine**
  - c) Alanine
  - d) Glycine
38. Which of the following contains a complete protein?

- a) Kidney beans
  - b) wheat
  - c) steak**
  - d) potatoes
39. What is a complete protein?
- a) It is a food that contains significant amounts of all the essential amino acids**
  - b) It is a food hat contains significant amounts of every single amino acid.
  - c) It is a food that is made completely of protein.
  - d) It is a single protein that contains every single amino acid.
40. Which of the following does NOT contribute to a specific protein's individual proprties and functions in the body?
- a) Shape
  - b) color**
  - c) sequence of amino acids
  - d) arrangement of charges, and regions of polarity or non-polarity.
41. Which of the following is NOT a function of protein?
- a) Provides several important players in the immune system
  - b) Acid-base balance
  - c) Muscular contraction
  - d) Protein is the body's first choice for an energy source.**
42. Which of the following is used primarily to store amino acids in the body?
- a) Glycogen
  - b) Triglycerides
  - c) Enzymes
  - d) Nothing. The human body does not have a good storage mechanism for amino acids**
43. Which of the following is referred to as the “primary structure” of a protein?
- a) The sequence of amino acids**
  - b) The pattern of re-occurring motifs such as coils and sheets
  - c) The over-all shape of a single protein
  - d) The way that separate proteins fit together
44. When do we expect to see positive nitrogen balance?
- a) When the body is building itself back up after an illness.**
  - b) When the body is being broken down by an illness.
  - c) During starvation.
  - d) When we eat a lot of protein.
45. What is the relationship between DNA and protein?
- a) DNA is used as a template to make proteins**
  - b) Proteins are used as a template to make DNA.
  - c) DNA is made out of amino acids
  - d) proteins are made out of nucleic acids