1. All of the following are part of Dietary Reference Intakes (DRI) EXCEPT:
   A) EAR
   B) RDA
   C) ATP
   D) UL
   E) AI

2. In metabolism, glucose is degraded to CO$_2$ and water. The carbon dioxide is produced in
   A) the red blood cells.
   B) the citric acid (krebs) cycle.
   C) glycolysis.
   D) the electron transport chain.
   E) gluconeogenesis

3. Cytochromes
   A) are pigment molecules.
   B) transport electrons in the electron transport chain.
   C) appear in the Citric acid cycle.
   D) are responsible for beta-oxidation of fatty acids.
   E) are made primarily of fatty acids

4. A body mass index of 23 represents
   A) underweight
   B) a healthy weight
   C) overweight
   D) obese
   E) morbid obesity

5. The following are functions of the large intestine EXCEPT:
   A) secretion of lipase.
   B) absorption of water
   C) absorption of vitamin K
   D) B and C are correct
   E) A, B and C are correct
6. Most absorption of nutrients occur in the
   A) mouth.
   B) stomach.
   C) small intestine.  
   D) large intestine.
   E) liver.

7. The intent of gastric bypass surgery is to
   A) make food pass through the GI tract too fast to get absorbed.
   B) limit the stomach's ability for absorption.
   C) prevent individuals from snacking.
   D) reduce stomach volume so individuals feel full and eat less.
   E) reduce length of large intestine to decrease absorption of nutrients.

8. Saturated fatty acids usually
   A) are fluid at room temperature.
   B) are solid at room temperature.  
   C) are derived from plant sources.
   D) yield 4 kcal of energy per gram.
   E) have lots of double bonds.

9. All the chemical reactions that occur in cells in are referred to as
   A) anabolism.
   B) catabolism.
   C) homeostasis.
   D) metabolism.  
   E) oxidation-reduction.

10. NAD is a coenzyme form of the vitamin
    A) pantothenic acid.
    B) niacin.  
    C) thiamin.
    D) riboflavin.
    E) vitamin C
11. The most energy-dense food sources are
   A) carbohydrates.
   B) proteins.
   C) fats.
   D) alcohol.
   E) vitamins.

12. In the electron transport chain
   A) water is produced.
   B) glucose is produced.
   C) ketones are produced.
   D) carbon dioxide is produced.
   E) oxygen is produced.

13. In the North American diet, the most frequently observed dietary problems are
    associated with
   A) a deficiency of vitamins A and D.
   B) a deficiency of B vitamins such as niacin.
   C) an excess intake of fat and cholesterol.
   D) an excess of dietary fiber.
   E) an excess of alcohol intake.

14. Glycolysis begins with _______ and ends with _______.
   A) pyruvate/H_2O
   B) pyruvate/glucose
   C) glucose/pyruvic acid
   D) pyruvate/acetyl-CoA
   E) glucose/CO_2

15. Most dietary fats will
   A) be converted to short-chain fatty acids for absorption with other water-soluble
      nutrients.
   B) enter the lymphatic system through lacteals.
   C) enter the colon and become “food” for bacteria.
   D) be converted to bile in the lumen of the intestine.
   E) be excreted as waste.
16. For most adults, the greatest portion of their energy expenditure is for
   A) walking
   B) basal metabolism.
   C) the thermic effect of food.
   D) sleeping
   E) running

17. Nutrients that are required to maintain good health and which must be obtained from the diet are called
   A) essential nutrients.
   B) nonessential nutrients.
   C) nutritional supplements.
   D) trace nutrients.
   E) minerals.

18. Glucose is classified as a
   A) simple sugar.
   B) dietary starch.
   C) complex carbohydrate.
   D) dietary fiber.
   E) co-enzyme.

19. Mandatory food components listed on the Nutrition Facts label include
   A) sugars, dietary fiber and fluoride.
   B) sugars, dietary fiber and calcium.
   C) sugars, dietary fiber and monounsaturated fat.
   D) sugars, calcium and B vitamins.
   E) sugar, dietary fiber and saturated fat

20. The hepatic portal system delivers nutrients from the digestive tract to the
   A) heart.
   B) liver.
   C) kidneys.
   D) lungs.
   E) muscles.
21. The following are considered "energy-yielding nutrients":
   A) vitamins, minerals, and water.
   B) carbohydrates, proteins, and fats.
   C) trace minerals and fat-soluble vitamins.
   D) iron, vitamin C, and potassium.
   E) calcium, vitamin D, and riboflavin

22. A triglyceride is an example of a
   A) fatty acid.
   B) glucose unit.
   C) lipid.
   D) trace mineral.
   E) an amino acid

23. Human digestion of food begins in the
   A) mouth.
   B) stomach.
   C) small intestine.
   D) liver.
   E) colon.

24. The science of food; the nutrients and substances therein; their action, interaction, and balance in relation to health and disease is a definition of
   A) life.
   B) energy metabolism.
   C) nutrition.
   D) food science.
   E) biochemistry.

25. The vitamin or mineral content of a food, compared to its total energy content, is referred to as
   A) natural density.
   B) standard of identity.
   C) calorie density
   D) nutrient density.
   E) original density.
26. An important form of energy used by most cells is
   A) NAD.
   B) FAD.
   C) TCA.
   D) ATP.
   E) ETC.

27. An inert substance with no biological activity or a fake medicine that is used in controlled experiments is called
   A) a placebo.
   B) a “blind” substance.
   C) “double-blind” substance.
   D) controlled substance.
   E) dietary supplements.

28. An example of a probiotic is
   A) bacteria in yogurt.
   B) fiber in whole wheat bread.
   C) calcium in milk.
   D) digestible carbohydrates in bananas.
   E) yeast in beer.

29. When the diet contains more energy than is expended, the excess energy
   A) is stored as fat in adipose tissue.
   B) increases the thermic effect of food.
   C) increases the basal metabolic rate.
   D) is excreted in the urine.
   E) is lost as heat.

30. Gluconeogenesis is the process whereby the body:
   A) converts glucose to glycogen
   B) retrieves stored glucose from the liver
   C) lowers the glucose level of the blood stream
   D) produces glucose from amino acid and glycerol molecules
   E) makes glucose from excess fatty acids
31. Heartburn is caused by
   A) acid surrounding the heart muscle.
   B) acid and other digestive enzymes within the heart muscle.
   C) the lower esophageal sphincter allowing backflow of stomach acid into the esophagus.
   D) bacteria making acid in the stomach.
   E) lactic acid in the chest muscles.

32. What is the primary factor determining enzyme function?
   A) shape of active site
   B) size
   C) product concentration
   D) primary structure
   E) substrate specificity

33. The stomach is protected from digesting itself by producing
   A) bicarbonate only when food is in the stomach.
   B) a thick layer of mucus to coat the lining of the stomach.
   C) hydroxyl ions to neutralize the acid.
   D) antipepsin that destroys digestive substances.
   E) bacteria-friendly cells

34. Water-soluble nutrients are absorbed in the small intestines by
   A) blood capillaries.
   B) lacteals.
   C) microvilli.
   D) rugae
   E) none of the above

Use the following to answer questions 35-38:

Match the items with the description.
   a. Sugars, starches, and fibers
   b. Organic compounds needed in tiny amounts
   c. Mostly fats and oils
   d. Made of building blocks called amino acids
   e. Inorganic molecules regulating chemical reactions and comprising part of some body structures
35. Proteins [D]
36. Carbohydrates [A]
37. Lipids [C]
38. Minerals [E]

39. The Food Guide Pyramid and the Dietary Guidelines are tailored specifically for each individual.
   A) True
   B) False

40. A kilocalorie and a "Calorie" equal the same amount of energy in food.
   A) True
   B) False

41. The initial reason a person loses weight when following a low-carbohydrate diet is due to loss of fat.
   A) True
   B) False

42. A small bagel would represent one serving from the bread group in the Food Pyramid.
   A) True
   B) False

43. Over-consumption of a nutrient can be just as harmful to health as under-consumption.
   A) True
   B) False

44. When an individual carries excess weight primarily in the upper body, it is referred to as ___ANDROID____ obesity.

45. Labeling laws require that ingredients in food products be listed on the container in descending order of their ___WEIGHT_____.

46. A sensible idea for preventing constipation is to consume foods high in ___FIBER_____. 75
47. A circular muscle that can open and close and acts to regulate the flow of materials in one direction is referred to as a _____SPHINCTER______.

48. A coordinated muscular contraction that propels food down the GI tract is called___PERISTALSIS______.

49. NADH and FADH$_2$ are considered carrier molecules because they carry __ELECTRONS______.

50. A less efficient type of anaerobic metabolism that can be performed by muscle cells to regenerate small amounts of ATP is called__FERMENTATION______.
Answer Key

1. C
2. B
3. B
4. B
5. D
6. C
7. D
8. B
9. D
10. B
11. C
12. A
13. C
14. C
15. B
16. B
17. A
18. A
19. B
20. B
21. B
22. C
23. A
24. C
25. D
26. D
27. A
28. A
29. A
30. D
31. C
32. A
33. B
34. A
35. A
36. A
37. A
38. A
39. B
40. A
41. B
42. B
43. A
44. android
45. weight.
46. fiber
47. sphincter.
48. peristalsis.
49. electrons
50. fermentation