

Name: _____

SCI141: Biology Sections
Study Guide 6

1. Metabolism refers to
 - a. chemical reactions such as photosynthesis.
 - b. the process of reproduction.
 - c. the formation of heterotrophs.
 - d. a collection of hypotheses.
2. Nutrient processing is a ____ process.
 - a. metabolic
 - b. generative
 - c. responsive
 - d. control
3. A nucleus is found in
 - a. bacteria.
 - b. eukaryotic cells.
 - c. blue-green algae.
 - d. All of these answers are true.
4. Ribosomes are the site of
 - a. cellular respiration.
 - b. photosynthesis.
 - c. anaerobic respiration.
 - d. protein synthesis.
5. A membrane is **not** necessary in
 - a. diffusion.
 - b. phagocytosis.
 - c. active transport.
 - d. osmosis.
6. An outside source of energy (ATP) is required for
 - a. osmosis.
 - b. diffusion.
 - c. active transport.
 - d. None of these answers are true.
7. The respiration (release of energy from food) of carbohydrates occurs in the
 - a. lysosome.
 - b. mitochondrion.
 - c. chloroplast.
 - d. flagellum.
8. Prokaryotic cells lack
 - a. granules.
 - b. a nucleus.
 - c. flagella.
 - d. All of these answers are true.
9. Molecules move from an area of **low** concentration to an area of **high** concentration during
 - a. osmosis.
 - b. facilitated diffusion.
 - c. diffusion.
 - d. active transport.
10. Food is produced in the
 - a. mitochondria.
 - b. nucleolus.
 - c. centriole.
 - d. chloroplast.
11. The primary function of capillaries is to
 - a. exchange materials with cells.
 - b. carry blood through the body.
 - c. manufacture blood cells.
 - d. connect arteries to veins.
12. Most of the oxygen carried by the blood is
 - a. dissolved in the plasma.
 - b. bound to hemoglobin molecules.
 - c. present as tiny bubbles in the blood.
 - d. part of sugar molecules.
13. Contraction of the diaphragm causes
 - a. a person to exhale.
 - b. the size of the chest cavity to increase.
 - c. air to flow from the lungs to the outside.
 - d. compression of the lungs.
14. The bile from the liver
 - a. contains enzymes.
 - b. is stored in the pancreas.
 - c. emulsifies fats.
 - d. is emptied into the stomach.

15. The nervous systems and glands are related in that.
- nerve cells can stimulate exocrine glands to secrete.
 - hormones from glands can change the way the nervous system responds.
 - the pituitary is in direct contact with the brain.
 - All of the above are correct.
16. In the genotype *AaBb*.
- a* is a recessive allele.
 - a* and *b* are alleles of each other.
 - A* and *b* are at the same locus.
 - A* and *a* are dominant genes.
17. A gene that can be masked by another gene is called
- pleiotropy.
 - dominant.
 - incompletely dominant.
 - recessive.
18. A condition when a diploid organism has different allelic forms of a particular gene is the definition of
- homozygous.
 - phenotype.
 - genotype.
 - heterozygous.
19. With regard to the ABO blood typing system, if A and B dominate O, which phenotype indicates the genotype when the alleles A and O are present?
- type A blood
 - type B blood
 - type AB blood
 - all of these answers
20. Which of the following represents the sex chromosomes of a typical human female?
- XY
 - XXX
 - XO
 - XX
21. A nucleotide is composed of the following molecules arranged in this order:
- three amino acids covalently bonded in a series.
 - three fatty acids individually bonded to three different places on glycerol.
 - a base bonded to a sugar bonded to a phosphate.
 - mRNA bonded to tRNA bonded to an amino acid.
22. Which of the following best describes the structure of DNA?
- single helix
 - protein coil
 - double helix
 - globular RNA
23. The backbone of a double helix is
- sugar-phosphate.
 - hydrogen bonds.
 - base-pairing.
 - All of these answers are true.
24. If the sequence of bases in mRNA is U, C, A, the sequence of bases in DNA is
- A, G, and U.
 - A, G, and T.
 - A, C, and A.
 - T, G, and U.
25. An mRNA molecule leaves the nucleus containing the following base sequence: CAC GUA GUA CCC. Which is the correct complementary base sequence for translation?
- CAC GUA GUA CCC
 - CAC GTA GTA CCC
 - GUG CAU CAU GGG
 - GTG CAT CAT GGG
26. A codon contains ____ nucleotides.
- one
 - two
 - three
 - four
27. Sperm cells are produced in the
- vas deferens.
 - penis.
 - urinary bladder.
 - testes.

28. Which of the following exhibits isolation based on geography?
- birds on island A and mammals on island B
 - fish in the water between island A and island B
 - trees on island A and bushes on island B
 - different species of sunflowers on island A and island B
29. The concept that life could originate from non-living matter is known as
- biogenesis.
 - spontaneous generation.
 - evolution.
 - natural selection.
30. Some scientists think that life may have originated on other planets because
- many meteorites contain organic molecules.
 - other planets in our solar system have oxygen in the atmosphere.
 - there is evidence of volcanoes on other planets.
 - the rocks on the moon are the same as rocks on the earth.
31. If the original atmosphere of the earth lacked oxygen the first organisms could have carried on
- aerobic respiration.
 - anaerobic respiration.
 - photosynthesis.
 - both anaerobic respiration and photosynthesis.
32. Heterotrophs must take _____ into their cells.
- oxygen
 - carbon dioxide
 - organic molecules
 - ultraviolet light
33. In order to reproduce other cells that are like themselves, a cell must
- have genetic material.
 - have a cell wall.
 - have the ability to carry on aerobic respiration.
 - be eukaryotic.
34. Aerobic respiration produces more _____ than anaerobic respiration.
- energy
 - oxygen]
 - DNA
 - ozone
35. Which one of the following best describes the relationship between the concepts of natural selection and evolution?
- evolution occurs because of natural selection
 - natural selection occurs because of evolution
 - evolution and natural selection are different names for the same thing
 - natural selection requires DNA, evolution does not
36. New genes become present as a result of
- mutations.
 - reproduction.
 - natural selection.
 - evolution.
37. In a population of sea turtles all of the following could be examples of natural selection *except*
- large females lay more eggs than small females.
 - large males have more wounds from fights than small males.
 - large males mate with more females than small males.
 - small females are more likely to be killed by sharks than large females.
38. Evolution would *not* occur if
- all individuals in a population were genetically identical.
 - there was only asexual reproduction.
 - mutations were more common.
 - mutations were less common.
39. A food chain always begins with
- decomposers.
 - producers.
 - commensals.
 - consumers.

41. Which is a food chain?
- grass-grasshopper-horse
 - fish-grasshopper-snake
 - light-grass-human
 - grass-cow-human
42. Which of the following would be at the highest trophic level?
- lion
 - grasshopper
 - mushroom
 - grass plant
43. Which of the following is part of the abiotic environment of an organism?
- grass
 - rain
 - food
 - decomposers
44. If there was less carbon dioxide in the atmosphere,
- there would be fewer carnivore
 - there would be fewer herbivores
 - there would be less plant biomass
 - All of the above are true.
45. The carrying capacity of the earth for humans is influenced by
- food and energy supply.
 - disposal of waste products.
 - interaction with other organisms.
 - All of these answers are true.