

**Directions:** Choose the letter that corresponds to the correct answer.

1. In the human ABO blood grouping, the four basic blood types are type A, type B, type AB, and type O. The blood proteins A and B are

- A. simple dominant and recessive traits.
- B. incomplete dominant traits.
- C. codominant traits.
- D. sex-linked traits.

2. The two daughter cells formed by mitosis and cytokinesis have

- A. half the number of chromosomes present in the parent cell.
- B. half the number of the chromosomes present in the parent cell if this parent cell is found in the testicular or ovarian tissue.
- C. the same number of chromosomes present in the parent cell.
- D. twice the number of chromosomes present in the parent cell.
- E. a variable number of chromosomes so that an exact prediction cannot be made.

3. Early in the ovarian cycle, estrogen, produced in the follicle, \_\_\_\_\_gonadotropin release, while later in the cycle, estrogen \_\_\_\_\_ gonadotropin release because

- A. inhibits; stimulates; feedback mechanisms are not involved early in the ovarian cycle.
- B. stimulates; inhibits; feedback mechanisms are not involved early in the ovarian cycle.
- C. inhibits; stimulates; the feedback mechanisms are dependent on the concentration of estrogen.
- D. stimulates; inhibits; the feedback mechanisms are dependent on the concentration of estrogen.

4. Which of the following statements concerning alleles is true for diploid organisms?

1. At most only two alleles occur at a given locus in an organism's genome.
2. Alleles occupy an identical locus in homologous chromosomes.
3. Alleles of a given gene usually occur on non-homologous chromosomes.
4. A single chromosome usually carries two alleles of each gene.

- A. 4
- B. 1 and 2
- C. 3
- D. 1, 2, and 4
- E. 3 and 4

5. Exoskeletons provide excellent protection to internal organs. However, animals that utilize exoskeletons are usually relatively small. Why?

- A. These animals are only able to produce a limited amount of chitin.
- B. Exoskeletons are not living tissue, and therefore they cannot grow.
- C. A large exoskeleton would be too heavy to move.
- D. During molting, these animals are especially vulnerable to predators and therefore do not usually live long enough to grow bigger.

6. Clotting of human blood

- A. requires that hemoglobin be present.
- B. results from fibrin joining globulin.
- C. is a result of platelets releasing fibrinogen.
- D. depends on the formation of fibrin from fibrinogen.
- E. is accelerated when calcium is removed.

7. The electron transport chain pumps protons

- A. out of the mitochondrial matrix.

- B. out of the intermembrane space and into the matrix.  
C. out of the mitochondrion and into the cytoplasm.  
D. out of the cytoplasm and into the mitochondrion.
8. An example of alleles is:
- A. AB and Tt.  
B. TT and Tt.  
C. T and t.  
D. X and Y.
9. A catalyst
- A. allows an endergonic reaction to proceed more quickly.  
B. increases the activation energy so a reaction can proceed more quickly.  
C. lowers the amount of energy needed for a reaction to proceed.  
D. is required for an exergonic reaction to occur.
10. The addition of potassium iodide as a nutritional supplement to common table salt would most directly affect the function of which of these glands?
- A. Thyroid  
B. Sweat glands  
C. Adrenal cortex  
D. Kidneys  
E. Parathyroid
11. Mitosis involves separation of only sister chromatids while meiosis involves?
- A. Also separation of only sister chromatids.

- B. Separation of only homologous chromosomes.
- C. Separation of homologous chromosomes as well as sister chromatids.
- D. Separation of sister chromatids twice.
12. An example of a genotype is:
- A. A tall pea plant.
- B. R and r.
- C. TtHH.
- D. Hemophiliac.
13. Each of the following is synthesized by the anterior lobe of the pituitary gland of vertebrates EXCEPT one. Which one is this EXCEPTION?
- A. Thyrotropic hormone
- B. Adrenocorticotropic hormone
- C. Follicle-stimulating hormone
- D. Growth hormone
- E. Oxytocin
14. How is the digestion of fats different from that of proteins and carbohydrates?
- A. Fat digestion occurs in the small intestine, and the digestion of proteins and carbohydrates occurs in the stomach.
- B. Fats are absorbed into the cells as fatty acids and monoglycerides but are then modified for absorption into the blood; amino acids and glucose are not modified further.
- C. Fats enter the hepatic portal circulation, but digested proteins and carbohydrates enter the lymphatic system.
- D. Digested fats are absorbed in the large intestine, and digested proteins and carbohydrates are absorbed in the small intestine.

15. Each of the following cell organelles has a membranous structure EXCEPT one. Which one is the EXCEPTION?

- A. Golgi complex.
- B. Centrioles.
- C. Mitochondria.
- D. Lysosomes.
- E. Endoplasmic reticulum.

16. Organisms in an ecosystem can be classified as producers or consumers. The producers provide food for the consumers. An organism that consumes both producers and other consumers is called a ...

- A. herbivore
- B. omnivore
- C. carnivore
- D. prey

17. If two white sheep produce a black offspring, the parent's genotypes for color must be:

- A. Heterozygous.
- B. Homozygous white.
- C. Homozygous black.
- D. Not enough information was given.

18. Pollution can cause problems within any ecosystem. The pollutants can enter this ecosystem by combining with the water vapor in the air. Their effect is felt when they become ...

- A. basic and cannot be decomposed
- B. acidic and cannot be decomposed

- C. basic and increase plant growth
- D. acidic and destroy the ecosystem

19. Most eukaryotic organisms have \_\_\_\_\_ chromosomes in their cells.

- A. 1-5
- B. 10-50
- C. 100-500
- D. over 1,000

20. Which of the following statements about nerve tissue is false?

- A. Neurons transmit sensory information to the brain.
- B. Both neurons and neuroglia are present in the CNS and PNS.
- C. Neurons conduct electrical impulses.
- D. All types of cells in nerve tissue conduct electrical impulses.