Name \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ Living Environment

Test 10

|  |  |
| --- | --- |
| 1. Evidence that best supports the theory of  biological evolution was obtained from the  (1) investigation of environmental niches  (2) study of fossil records  (3) comparison of the number of cells in organisms  (4) analysis of food chains and food webs  2. In sexually reproducing organisms, mutations can be inherited if they occur in  (1) the egg, only  (2) the sperm, only  (3) any body cell of either the mother or the  father  (4) either the egg or the sperm  3. Compared to a normal body cell, a normal egg cell contains  (1) the same number of chromosomes  (2) half the number of chromosomes  (3) twice the number of chromosomes  (4) four times the number of chromosomes  4 Within which structure of an animal cell does  DNA replication take place?  (1) vacuole (3) nucleus  (2) cell membrane (4) ribosome  5. In order to enter cells and be useful to the body, starch must be  (1) absorbed through the skin  (2) broken down into fats and water  (3) digested into simple sugars  (4) converted to carbon dioxide and ATP | 6. Which event would most likely cause a change in a genetic sequence in an organism?  (1) eating certain foods high in saturated fats  (2) strenuous physical activity  (3) exposure to radiation  (4) a sudden exposure to cooler temperatures  7. Sexual reproduction in a species usually results in  (1) an increase in the chromosome number in  the offspring  (2) offspring genetically identical to the  parent  (3) recombination of genes  (4) a decrease in biodiversity  8. Exposure to toxins during early stages of  pregnancy is more likely to cause birth defects than exposure in late pregnancy because  (1) essential organs form during early  development  (2) the uterus provides more protection in late pregnancy  (3) the placenta forms during late pregnancy  (4) meiosis occurs rapidly during early  development  9. Certain antibacterial soaps kill 99% of the bacteria present on hands. Constant use of these soaps could be harmful over time because  (1) more pathogens may be resistant to the soap  (2) microbes prevent viral diseases  (3) large populations of pathogens are beneficial to the hands  (4) the soap stimulates skin cell division |

10. Part of a process necessary for reproduction in complex organisms is represented below.



Step *C* results in the production of

(1) four zygotes that will develop into embryos

(2) embryonic cells that could unite and develop into an organism

(3) four cells that will recombine to form two offspring

(4) gametes that could be involved in the formation of a zygote

11. The diagram below represents a microscopic view of blood.



Cell *A* protects the body by producing specific chemicals in response to pathogens. Cell *A* is

(1) a red blood cell (3) an insulin-producing cell

(2) a bacteria cell (4) a white blood cell

12. A vaccine for the viral disease known as chicken pox would contain

(1) a large amount of live virus

(2) a dead or weakened form of the pathogen

(3) several different antibiotics

(4) a small number of white blood cells

13. The failure of the human body to effectively maintain dynamic equilibrium can result in

(1) reproductive success

(2) gene manipulation

(3) differentiation

(4) disease

Base your answers to questions 14 and 15 on the diagram below and on your knowledge of biology.

The diagram represents the human female reproductive system.



14. Structure *A* usually produces

(1) sperm and eggs

(2) testosterone and eggs

(3) estrogen, progesterone, and eggs

(4) estrogen, progesterone, and testosterone

15 The placenta forms from the combination of fetal tissue and tissue from structure

(1) *A* (3) *C*

(2) *B* (4) *D*



16. Each of these varieties was most likely produced as a result of

(1) asexual reproduction in the wild for many years (3) competition between plants

(2) changes in light availability (4) selective breeding over many generations

17. Four different segments of a DNA molecule are represented below.

**Segment 1 Segment 2 Segment 3 Segment 4**

T–A–G–G–C G–G–T–G–A G–A–T–T–A C–A–A–T–G

A–T–C–C–G C–C–A–C–T C–C–A–A–T G–T–T–A–C

There is an error in the DNA molecule in

(1) segment 1, only (3) segments 2 and 3

(2) segment 3, only (4) segments 2 and 4

Samples of DNA from an eye-color gene of four individuals, *W*, *X*, *Y*, and *Z*, were cut

into pieces using a type of chemical. The results of this procedure are shown below.



18. Identify the specific type of chemical used to cut the DNA in this procedure. [1]

\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

19. The diagram below represents the same field of mice hunted by a hawk over a period of three months.



The overall changes in the population of mice can be explained best by

(1) natural selection (3) reproduction

(2) succession (4) mouse extinction

The segments represent the same region of DNA that codes for a particular pigment (color) in these species.

Plant Species A: A C C G C A G G G A T T C G C

Plant Species B: A C C G G A G C G A T T C G C

20. A restriction enzyme is used to cut the DNA from species *A* and *B.* The enzyme binds to the sequence G G G A T T and cuts between G and A*.* State how many cuts will be made in the DNA sequences of each species when this enzyme is used. [1]

Plant species *A* cuts: \_\_\_\_\_\_\_\_\_\_\_\_ Plant species *B* cuts: \_\_\_\_\_\_\_\_\_\_\_\_

Endometriosis is a condition that occurs in some women, causing multiple cells or layers of cells to grow outside of the uterus. In some cases, these growths can actually cover the entire ovary or cause the tube leading from the ovary to the uterus to be blocked. The diagram below represents the female reproductive system. Two structures, *A* and *B*, are labeled.



21. Select structure *A* or *B* and indicate your selection on the line below. Describe specifically how the growths that are characteristic of endometriosis at the location you selected could affect the ability of a female to become pregnant. [1]

Structure: \_\_\_\_\_\_\_\_\_\_

Affect: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Base your answers to questions 50 through 53 on the graph below and on your knowledge of biology.

The graph shows some events associated with the reproductive cycle of human females.



22. Which sections of the graph represent structures affected directly by the hormones shown?

(1) section *A* and section *B*, only (3) section *A* and section *C*, only

(2) section *B* and section *C*, only (4) section *A*, section *B*, and section *C*

23. According to the graph, on which day is the egg released from the ovary? [1]

Day:\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

24. Which section of the graph shows the location where the zygote would most likely become implanted and develop? [1]

Section:\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

25. Identify another human reproductive hormone that is *not* shown on this graph. [1]

\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

.

Base your answers to questions 26 and 27 on the data table below and on your knowledge of biology. The data table shows the concentration of estrogen in picograms per milliliter (pg/mL) in the blood of a woman over the course of 28 days.



26. Using the information given in the data table, **construct a line graph** on the grid provided.

27. The concentration of estrogen at day 8 is closest to

(1) 28 pg/mL (3) 150 pg/mL

(2) 80 pg/mL (4) 200 pg/mL

Name \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Test 10

1. \_\_\_\_\_\_  
2. \_\_\_\_\_\_

3. \_\_\_\_\_\_

4. \_\_\_\_\_\_

5. \_\_\_\_\_\_

6. \_\_\_\_\_\_

7. \_\_\_\_\_\_

8. \_\_\_\_\_\_

9. \_\_\_\_\_\_

10. \_\_\_\_\_

11. \_\_\_\_\_

12. \_\_\_\_\_

13. \_\_\_\_\_

14. \_\_\_\_\_\_

15. \_\_\_\_\_\_

16. \_\_\_\_\_\_

17. \_\_\_\_\_\_

18. \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

19. \_\_\_\_\_\_

20. Speceis A \_\_\_\_\_\_\_\_\_\_\_\_\_ Species B \_\_\_\_\_\_\_\_\_\_\_

21. Structure \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Affect \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

22. \_\_\_\_\_\_

23. Day \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

24. Section \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

25. \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

26.



27. \_\_\_\_\_\_\_\_\_\_