Genes, Health and You Test—Answer Key

Section One: True and False.

1. Tissues are made up of genes. **False**
2. Genes are made up of DNA. **True**
3. Organ systems are made up of organisms. **False**
4. Genes are found in the nucleus of the cell. **True**
5. A normal human karyotype has 48 chromosomes. **False**
6. A normal human karyotype has 23 pairs of chromosomes. **True**
7. If chromosomes are abnormal, the result is disease. **True**
8. Chromosomes contain genes—some are dominant and some are recessive. **True**
9. Organisms receive half their chromosomes from each parent. **True**
10. Gregor Mendel’s discoveries were not very helpful. **False**
11. An organism that is purebred for a trait carries one dominant gene and one recessive gene. **False**
12. If two hybrid organisms are bred together, half of their offspring will also be hybrid. **True**
13. Like hemophilia, colorblindness is generally passed by mothers to sons. **True**
14. Huntington’s Disease is caused by a virus. **False**
15. The human genome project is still years away from completion. **True**

Section Two: Multiple Choice. Circle your answer.

1. Which of the following is in the correct order from largest to smallest?
   A. Organisms → Genes → Organ systems → populations
   B. Organisms → Organs → Cells → Chromosomes
   C. Genes → Cells → Tissues → Organs
   D. Populations → tissues → communities → cells

2. Genes are found on _______________________.
   A. DNA
   B. cells
   C. teenagers
   D. chromosomes

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3. ____________________ are specialized groups of cells working together to perform a particular function.
   A. Genes
   B. Organ systems
   C. Communities
   D. Tissues

4. If a child is born with 3 copies of chromosome 21, which of the following is the most likely thing to happen?
   A. The child will be an honors student.
   B. The child will need special schooling.
   C. The child will die before being born.
   D. Nothing will happen—3 copies of 21 is normal.

5. A person inherits ___________ chromosomes from each parent.
   A. 1
   B. 23
   C. 46
   D. 100

6. Which of the following best describes the difference in an actual male karyotype and a female one?
   A. Male chromosomes are blue; female chromosomes are pink.
   B. Females carry two full chromosomes as the 23rd pair, males do not.
   C. Males carry two full chromosomes as the 23rd pair, females do not.
   D. There is no difference.

7. If a child gets a dominant gene from one parent, and a recessive gene from another parent, which gene will express itself?
   A. Neither, the genes will blend.
   B. The dominant one.
   C. The recessive one.
   D. That gene will not function at all because of the conflict.

8. Gregor Mendel is now known by which title?
   A. Gregor the geneticist
   B. Father of modern genetics
   C. Father Gregor
   D. Mr. Mendel

9. Mendel used what kind of plants when he experimented?
   A. Peas
   B. Carrots
   C. Broccoli
   D. Beans
10. Mendel used ______________ to predict the outcomes of his plants.
   A. a calculator
   B. guesswork
   C. math
   D. chemistry

11. If I have two bags, each containing fifty red and fifty white beads, and I begin
drawing pairs, what are the possible outcomes?
   A. Red/Red
   B. Red/White
   C. White/White
   D. All of the above.

12. In question 8, which pair would you expect to draw most often?
   A. Red/Red
   B. Red/White
   C. White/White
   D. All pairs equally often.

13. What disease affected the royal families of Europe in the last two centuries?
   A. Colorblindness
   B. Huntington’s Disease
   C. Hemophilia
   D. Diabetes

14. Sex linked genetic diseases are carried by the ______________ and passed to
the ______________.
   A. Father, sons
   B. Daughters, Mothers
   C. Fathers, daughters
   D. Mothers, sons

15. Pedigree charts are useful because
   A. they help scientists chart a genetic disease through a family.
   B. it is an easy way to see which generations have the disease.
   C. scientists would rather draw pictures than write down data.
   D. A and B only.

16. Which of the following is a symptom of Huntington’s Disease?
   A. Choking
   B. Difficulty controlling movements
   C. Mood swings
   D. All of the above
17. Huntington’s disease is dominant. If a man with HD and a woman without HD have four children, how many would you expect to have HD
   A. 4
   B. 3
   C. 2
   D. 1

18. The Human Genome Project’s goal is to
   A. map all of the genes on the human chromosomes.
   B. share information worldwide with many scientists.
   C. use the information gathered to advance medicine.
   D. all of the above.