

Questions 6-8: Each of the lettered choices below refers to the following numbered statements. Select the best lettered choice (a choice may only be used once or not at all).

_____ 6. Offspring of crosses between parents with different traits.

_____ 7. Appearance due to genetic makeup.

_____ 8. Having two identical alleles for a given choice.

9. What is probability? How does probability relate to genetics? Fully explain.

10. Genes that control hair or feather color in some animals are expressed differently in the winter than in the summer. How might such a difference in expression be beneficial to the same ptarmigan (arctic ground-dwelling bird) shown during two different seasons below?



11. Explain why horse breeders will pay a lot of money to breed (mate) one of their horses with a horse that has won the Kentucky Derby?

12. Suppose you found out that a mating between a black rabbit and a brown rabbit produced all black offspring. Propose a hypothesis to explain the color of the offspring.

- _____ 23. A common genetic disorder characterized by bent and twisted red blood cells is
- A. cystic fibrosis (CF) C. sickle cell disease
 B. hemophilia D. muscular dystrophy (MD)

24. What is a karyotype?

25. Why are sex-linked disorders more common in males than in females?

26. List at least two sex-linked disorders:

27. In the pedigree below, the shaded symbols indicate people who have hemophilia.

- a. Which mothers certainly are carriers? _____
- b. Why did the sons of person 3 **not** inherit the trait?

