Chapter 13: Genetic Technology

1. What is a cultivar?
   - a. guinea pigs with black hair represented by the dominant B allele
   - b. two closely related species of plants
   - c. cows that produce three times more milk than they did 50 years ago
   - d. the offspring of parents who each exhibit different forms of a trait

2. Look at the DNA fingerprint pattern shown below. Which pair of parents' DNA matched the soldier’s DNA?
   - a. Parents G and H
   - b. Parents C and D
   - c. Parents A and B
   - d. Parents E and F

3. Which of these statements is NOT true?
   - a. If DNA from fetal cells are examined and shown to have the mutation associated with a disorder, the fetus will develop the disorder.
   - b. Forensic analysts called crime lab technicians perform autopsies to determine the cause of death.
   - c. One important outcome of the human genome project is the diagnosis of genetic disorders.
   - d. Gel electrophoresis is used to analyze DNA as part of the analysis of genetic disorders.

4. Which of these is the first stop in the process to produce a transgenic organism?
   - a. attach the DNA fragment to a carrier
   - b. clone double-stranded DNA fragments using PCR
   - c. isolate the foreign DNA fragment
   - d. transfer the DNA fragment into the host organism
5. Which of these is NOT an example of the effectiveness of selective breeding?
   - a. stronger offspring plants than the parent plants
   - b. more milk production in cows
   - c. selecting the smallest, least-juiciest berries
   - d. choosing eggs from the best egg-laying hen for hatching

6. Which process is used to insert normal genes into human cells to correct disorders?
   - a. forensic analysis
   - b. sequencing the human genome
   - c. live vector vaccines
   - d. gene therapy

7. Which part of the human body are bone marrow cells removed from to perform SCID gene therapy?
   - a. hip bone
   - b. skull
   - c. lung
   - d. wrist

8. __________ occurs when two closely related individuals mate.
   - a. Cultivars
   - b. Inbreeding
   - c. Test crossing
   - d. Cloning

9. If a known test dog is homozygous recessive for a trait (dd), and the unknown test dog is homozygous dominant for a trait (DD), what percentage of the offspring will be homozygous recessive?
10. What is a hybrid plant?

- a. the process of selecting seeds from the largest of a cultivar of plants
- b. a cross between an individual of unknown genotype with an individual of a known genotype
- c. offspring that are heterozygous
- d. the offspring of parents that have different forms of a trait

11. Which of these crops has the smallest percentage of genetically modified crops for its total area?

- a. corn
- b. cotton
- c. canola
- d. soybeans
12. A small ring of DNA found in a bacterial cell is called __________.
   - a. gel electrophoresis
   - b. PCR
   - c. a palindrome
   - d. a plasmid

13. Using __________, cloning of millions of copies of DNA fragments can happen in a few hours.
   - a. linkage mapping
   - b. gene therapy
   - c. polymerase chain reactions
   - d. DNA fingerprinting

14. Which of these animals is NOT typically used for transgenic studies?
   - a. mice
   - b. roundworms
   - c. frogs
   - d. fruit flies

15. __________ are bacterial proteins that have the ability to cut both strands of the DNA molecule at a specific nucleotide sequence.
   - a. Vectors
   - b. Transgenic animals
   - c. Restriction enzymes
   - d. Clones