Biological Resistance

Name: _____   **Date:** _____

1. In 1992, scientists announced that they may have found a vaccine that protects monkeys against a certain disease. Several monkeys vaccinated in 1990 and then exposed to the virus have not acquired the disease after two years. What conclusion about the vaccine is *most* appropriate?

    A. The vaccine is reliable because the scientists have not become infected.

    B. The vaccine is reliable based on current information.

    C. The vaccine is not reliable because not enough time has passed to be sure.

    D. The vaccine should be put on the market before any monkeys die.

2. This chart shows the worldwide number of measles cases over twenty years.

    Worldwide Cases of Measles

Year	Measles Cases
1980	3,800,000
1985	2,800,000
1990	1,400,000
1995	800,000
2000	1,000,000

    Which is *most likely* the cause of the decline in measles cases from 1980 to 1990?

    A. antibiotics   B. chemotherapy

    C. quarantines   D. vaccinations

3. Why do doctors suggest that people get a flu vaccine each year?

    A. Viruses replicate more rapidly over time.

    B. Viruses can mutate from year to year.

    C. Vaccines are absorbed by the body after a year.

    D. Vaccines get stronger over time.

4. If you get vaccinated against chicken pox when you are young, you are not likely to get the disease. One reason for this is that

    A. the virus that causes chicken pox cannot enter your body after vaccination.

    B. the medicine in the vaccination is stored in your body.

    C. the chicken pox virus is not harmful to you when you are older.

    D. the vaccination causes your body to form antibodies against the virus.

5. Antibiotic resistance can vary within a population of bacteria. The diagram below represents the changes in a population of bacteria as a result of exposure to an antibiotic over time.

Original Population   **Final Population**

Key
Low ⚪◯◓⚫ High
Antibiotic resistance level
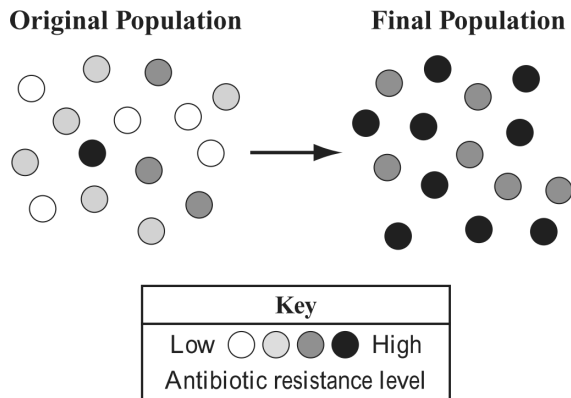
The changes in the population are *most likely* the result of which of the following?

A. exponential growth   B. genetic crosses

C. immigration   D. natural selection

6. Use the information and the drawing below to answer the following question(s).

The desert climate is caused by geographic conditions such as location, high atmospheric pressure, and proximity of mountain ranges. Average desert rainfall amounts are usually less than 50 cm per year. Soil in deserts is coarse, sandy, and rocky. Desert plants and animals have specialized characteristics that help them survive in the harsh environment. An example is the Saguaro cactus. The Saguaro has a shallow root system with a main taproot and other roots that radiate out and collect surface water. The trunk of the Saguaro has the ability to expand while storing water. The sweet-nectar flowers of the Saguaro attract white-winged doves, bats, and other animals. These animals feed on the nectar. They are necessary for cross-pollination. Cross-pollination occurs when the pollen of a flower is carried to a flower on another plant. The illustration below shows the Saguaro cactus.

SAGUARO CACTUS
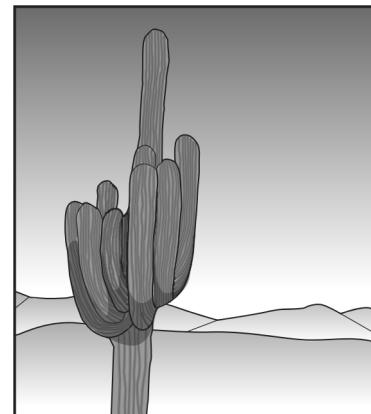
Which advantage is the *most likely* result of cross-pollination to Saguaro cacti?

A. disease resistance

B. variation within the species

C. larger cacti offspring in each generation

D. increased number of animals that drink nectar

7. For many years, penicillin was used to fight bacterial infections. However, penicillin is no longer an effective treatment for some bacterial infections. Which statement explains this change?

A. Some bacteria had mutations that prevented penicillin from affecting them, and they reproduced.

B. Some bacteria multiplied rapidly and overwhelmed the penicillin.

C. Some bacteria used the penicillin as a source of energy.

D. Some bacteria adapted to their environment, and they destroyed the penicillin.

8. Genetic equilibrium exists in a population that is stable. Which conditions would support genetic equilibrium within a species?

A. frequent mutations

B. random mating

C. small number of individuals

D. migration into the population

9. A termite population was sprayed with a certain brand of insecticide. After being sprayed, the number of surviving termites within the population were counted and recorded as a percentage of the total. This process was repeated until a total of six generations of termites had been sprayed. The results are shown in the table below.

Termite Generation	Percentage of Surviving Termites After Spraying
1	5%
2	10%
3	25%
4	40%
5	60%
6	80%

Which statement best explains why later generations had higher percentages of termites that survived?

A. Earlier generations had several members that were old and weak.

B. Earlier generations had smaller numbers of termites than later generations.

C. Later generations were able to live through the spraying because they were used to it.

D. Later generations were the offspring of termites that were more resistant to the spraying.

10. Four discs, each soaked in a different antibiotic, were placed on the surface of a culture plate that had been inoculated with *E. coli* bacteria. The diagram pictured shows the culture plate after it had been incubated for 48 hours. Which antibiotic was most effective in inhibiting the growth of *E. coli*?
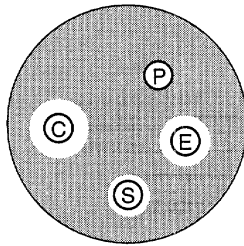
Key:

Shaded area represents *E. coli*

Clear area represents absence of *E. coli*

Antibiotic disc

P = penicillin
E = erythromycin
S = streptomycin
C = chloramphenicol

A. penicillin   B. erythromycin

C. streptomycin   D. chloramphenicol

11. The diagram below shows the effect of spraying a pesticide on a population of insects over three generations.
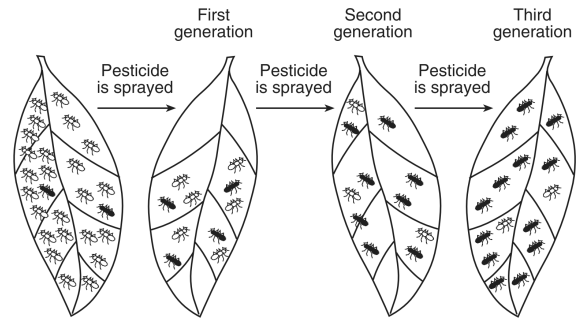
Which concept is represented in the diagram?

A. survival of the fittest

B. dynamic equilibrium

C. succession

D. extinction

Biological Resistance

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1.
Answer: B
Points: 1

2.
Answer: D
Points: 1

3.
Answer: B
Points: 1

4.
Answer:
Points: 1

5.
Answer: D
Points: 1

6.
Answer: B
Points: 1

7.
Answer: A
Points: 1

8.
Answer: B
Points: 1

9.
Answer: D
Points: 1

10.
Answer: D
Points: 1

11.
Answer: A
Points: 1