1. Corn seedlings grown in the dark appear white. After being exposed to sunlight, the same seedlings turn green. The whiteness of these seedlings was most probably due to
   (1) albinism (2) linkage **(3) environment** (4) multiple alleles

2. If bean plant seedlings are germinated in the dark, the seedlings will lack green color. The best explanation for this condition is that
   (1) bean plants are heterotrophic organisms
   (2) bean seedlings lack nitrogen compounds in their cotyledons
   (3) the absence of an environmental factor limits the expression of a genotype
   (4) bean plants cannot break down carbon dioxide to produce oxygen in the dark

3. Which is an example of environmental influence on gene expression?
   (1) the production of plants bearing oval squash from parent plants bearing round and long squash
   (2) the effect of light on chlorophyll production in plants
   (3) the pattern of inheritance for sex-linked traits in humans
   (4) the production of human offspring with blood type AB

4. A green corn plant, when grown in reduced light for a period of time, will show a yellowing of leaves. This yellowing is partly due to the
   (1) effect of pH on gene action
   (2) increase in polyploidy in the plant
   (3) effect of light on gene action
   (4) expression of recessive traits is reduced

5. Two cuttings taken from the same parent plant may differ in phenotypes when they are grown in separate containers. This difference is most likely due to
   (1) the presence of heterozygous genotypes
   (2) cross-pollination
   (3) the development of polyploidy
   (4) environmental factors

6. Corn seeds of the same species were separated into two groups. One group was grown in the dark and the other group was grown in the light. All other environmental conditions remained constant. After a week, the seeds germinated in the dark produced no green-leafed plants and 97 white-leafed plants, while seeds germinated in the light produced 74 green-leafed plants and 23 white-leafed plants. The plants originally grown in the dark were then placed in the light. After 2 days, 73 white-leafed plants turned green and 24 stayed white. From these observations, it may be concluded that
   (1) neither heredity nor environment is important in determining the phenotype of corn plants
   (2) both heredity and environment are important in determining the phenotype of corn plants
   (3) environment is the only factor that determines the phenotype of corn plants
   (4) heredity is the only factor that determines the phenotype of corn plants

7. A certain species of plant produces blue flowers when the soil pH is above 7.0. However, when the soil pH is below 7.0, the flowers are pink. Which statement best explains this color change?
   (1) Mutagenic agents can alter genotypes.
   (2) The environment influences gene action.
   (3) Polyploidy produces 2n gametes.
   (4) Chromosomal mutations produce color effects.

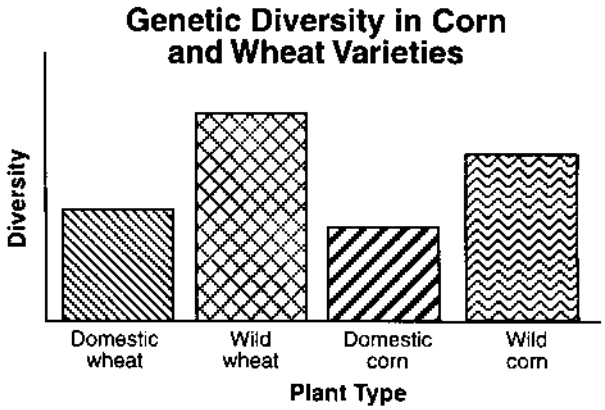
8. Potato tubers turn green when they are exposed to sunlight. This is most likely due to
   (1) independent assortment of two genes
   (2) the presence of a sex-linked gene
   (3) codominance of all genetic traits in potatoes
   (4) the interaction of genes with the environment

9. Which example illustrates the modification of a phenotype by an environmental factor?
   (1) A homozygous gray squirrel is the same color as a heterozygous gray squirrel.
   (2) Pink-flowering four-o'clocks that were allowed to self-pollinate produced offspring with red, pink, and white flowers.
   (3) Seedlings germinated in darkness are white, but most of these seedlings turn green when placed in light.
   (4) A person heterozygous for sickle-cell anemia has a higher-than-normal resistance to malaria.

10. In an experiment, corn seeds were germinated and grown in the dark. When leaves developed, they were white. Several days later, the plants were exposed to sunlight and the leaves turned green. A possible explanation for this color change is that the
   (1) expression of the genes controlling chlorophyll production is influenced by environmental factors
   (2) genes that control chlorophyll production cannot be expressed until the plant is mature
   (3) alleles for leaf color in corn plants are codominant
   (4) exposure to ultraviolet radiation present in sunlight caused a mutation in the corn plants

11. A garden hose that had been lying on a green lawn for several days was removed. Which statement best explains the presence of yellow grass in the area where the hose had been?
   (1) The lack of sunlight under the hose altered the genotype of the grass.
   (2) Gene expression is not affected by the environment.
   (3) The hose altered genes in the grass, causing the grass to switch from autotrophic to heterotrophic nutrition.
   (4) The lack of sunlight under the hose affected chlorophyll production.

12. Base your answer on the graph below and on your knowledge of biology.



If the environment were to change dramatically or a new plant disease were to break out, which plant type would most likely survive?

(1) wild wheat (2) domestic wheat (3) wild corn (4) domestic corn

13. Flower color in primrose plants is controlled by an individual gene. The sudden appearance of one white flowering primrose in a plant breeder's field of red primrose plants is most likely due to
   (1) a change in the amount of glucose produced during photosynthesis
   (2) the use of a new natural fertilizer on the field
   (3) rapid mitotic divisions within the developing seeds
   (4) a random change in the structure of DNA during meiosis