1. Which factors most directly control the development of soils?
   A) soil particle sizes and method of deposition
   B) bedrock composition and climate characteristics
   C) direction of prevailing winds and storm tracks
   D) earthquake intensity and volcanic activity

2. The formation of soil is primarily the result of
   A) stream erosion and mass movement
   B) stream deposition and runoff
   C) precipitation and wind erosion
   D) weathering and biological activity

3. Which change would cause the topsoil in West Virginia to increase in thickness?
   A) an increase in slope
   B) an increase in biologic activity
   C) a decrease in rainfall
   D) a decrease in air temperature

4. Lichens are usually the first organisms that appear in barren, rocky areas. They use rootlike structures to split bedrock into small fragments. Lichens also secrete acidic solutions that help break down rock. The cross sections below represent an area when lichens first appeared (time 1) and that same area hundreds of years later, after it was changed by lichens and exposed to air and water (time 2).

The soil shown in time 2 was formed mainly by
   A) compaction and cementing
   B) weathering and biological activity
   C) faulting and tilting of rock strata
   D) mass movement and deposition of particles
5. Which factor has the most influence on the development of soil?
   A) climate  
   B) longitude  
   C) amount of rounded sediment  
   D) slope of the landscape

6. Which substance found in a soil sample collected in an arid region would most likely be absent in a soil sample collected in a humid region?
   A) rock salt  
   B) quartz  
   C) obsidian  
   D) pyroxene

7. The graph below shows how environmental temperatures affect the amount of organic material (humus) added to and removed from soils in humid regions.

   ![Graph showing the effect of temperature on organic material addition and removal.]

   The graph supports the conclusion that soils in regions with average annual temperatures above 25°C have
   A) little humus present  
   B) the highest production of humus  
   C) a low breakdown of humus  
   D) the same amount of humus as soils in cooler regions

8. Humus, which is formed by the decay of plant and animal matter, is important for the formation of most
   A) soils  
   B) minerals  
   C) sediment  
   D) surface bedrock

9. The cross section below shows a soil profile.
   ![Cross section of soil profile.]

   This soil was formed primarily by
   A) erosion by glaciers  
   B) erosion by running water  
   C) capillarity and human activity  
   D) weathering and biological activity
10. The diagram below shows a soil profile formed in an area of granite bedrock. Four different soil horizons, A, B, C, and D, are shown.

Which soil horizon contains the greatest amount of material formed by biological activity?

A) A    B) B    C) C    D) D

11. Soil horizons develop as a result of

A) evaporation and transpiration
B) compacting and cementing
C) weathering and biological activity
D) faulting and folding

12. Characteristics such as composition, porosity, permeability, and particle size are used to describe different types of

A) hillslopes
B) stream drainage patterns
C) soils
D) landscapes

13. The mineral composition of a residual soil is most affected by the

A) depth of the water table
B) elevation of the surface
C) steepness of hillslopes
D) type of bedrock material

14. The cross section below shows soil layer X, which was formed from underlying bedrock.

Which change would most likely cause soil layer to increase in thickness?

A) a decrease in slope
B) a decrease in rainfall
C) an increase in biologic activity
D) an increase in air pressure

15. The cross section below shows layers of soil.

Which two processes produced the layer of dark brown to black soil?

A) melting and solidification of magma
B) erosion and uplifting
C) weathering and biologic activity
D) compaction and cementation
16. Solid bedrock is changed to soil primarily by the process of

A) erosion  B) weathering  
C) infiltration  D) transpiration