1. ***What is soil genesis?***
   1. The process of breaking down rocks into smaller particles
   2. The formation of soil from raw parent material or pre-existing soil
   3. The weathering of rocks and minerals
   4. The conversion of primary minerals to secondary minerals
2. ***What processes are involved in weathering?***
   1. Physical and chemical processes
   2. Chemical and biological processes
   3. Biological and physical processes
   4. all of the above
3. ***What is physical weathering?***
   1. The breakdown of rock through chemical reactions
   2. The peeling away of outer layers of a rock
   3. The breakdown of rock through physical processes
   4. None of the above
4. ***What is exfoliation?***
   1. The breakdown of rock through chemical reactions
   2. The peeling away of outer layers of a rock
   3. The breakdown of rock through physical processes
   4. None of the above
5. ***What is the role of temperature in physical weathering?***
   1. It causes alternate expansion and contraction of minerals
   2. It increases the size of particles
   3. It promotes chemical reactions
   4. It has no role in physical weathering
6. ***What is the role of water in physical weathering?***
   1. It causes alternate expansion and contraction of minerals
   2. It promotes chemical reactions
   3. It wears down rocks through abrasion
   4. It has no role in physical weathering
7. ***What is the role of wind in physical weathering?***
   1. It causes alternate expansion and contraction of minerals
   2. It promotes chemical reactions
   3. It wears down rocks through abrasion
   4. It has no role in physical weathering
8. ***What is biogeochemical weathering?***
   1. The breakdown of rock through chemical reactions
   2. The breakdown of rock through physical processes
   3. The breakdown of rock through biological processes
   4. The breakdown of rock through a combination of chemical and biological processes
9. ***What factors enhance chemical weathering?***
   1. Presence of water and oxygen
   2. Presence of wind and ice
   3. Presence of sunlight and heat
   4. None of the above
10. ***What is the term used to describe the process of chemical weathering aided by biological agents?***
    1. Biogeochemical weathering
    2. Physical weathering
    3. Chemical weathering
    4. Abrasion
11. ***Who recognized the five major environmental factors that control soil formation?***
    1. Dukochaev
    2. Jenny
    3. Russian soil scientists
    4. None of the above
12. ***What are the five major environmental factors that control soil formation?***
    1. Climate, vegetation, topography, parent material, and time
    2. Climate, wind, water, sunlight, and heat
    3. Climate, soil type, minerals, organic matter, and erosion
    4. None of the above
13. ***What did the field studies by Russian soil scientists in the late 19th century reveal?***
    1. Similar profile layering in soils hundreds of kilometers apart
    2. The presence of water and oxygen enhances chemical weathering
    3. Physical abrasion decreases the size of particles and increases their surface area
    4. None of the above
14. ***What is the role of microbial and plant-root metabolism in chemical weathering?***
    1. They produce acids that aid in chemical weathering
    2. They cause physical abrasion
    3. They promote the breakdown of rocks through biological processes
    4. They have no role in chemical weathering
15. ***What is the difference between primary minerals and secondary minerals?***
    1. Primary minerals are found on the surface, while secondary minerals are found underground
    2. Primary minerals are larger than secondary minerals
    3. Primary minerals are formed through the secondary minirals
    4. All of the above
16. ***What is the Hans Jenny equation for soil formation?***
    1. Soil = climate (precipitation and temperature)
    2. Soil = organisms (biota, vegetation, microbes, soil animals)
    3. Soil = relief or topography (slope, aspect, landscape position)
    4. None on the above
17. ***What is the definition of soil?***
    1. Dynamic natural bodies having properties derived from climate and topography
    2. Dynamic natural bodies having properties derived from climate, biotic activities, topography, and parent materials over time
    3. Dynamic natural bodies having properties derived from parent materials
    4. Dynamic natural bodies having properties derived from topography
18. ***How do parent materials affect soil characteristics?***
    1. The chemical and mineralogical composition of parent material affects chemical weathering and natural vegetation
    2. The nature of the parent material influences soil characteristics, such as texture and percolation of water
    3. The presence of limestone in parent material slows the development of acidity in humid climates
    4. All of the above
19. ***What is the difference between residual and transported parent material?***
    1. Residual parent material develops in place from weathering of underlying rock, while transported parent material is moved to a different location
    2. Residual parent material is moved to a different location, while transported parent material develops in place from weathering of underlying rock
    3. Residual parent material is the same as transported parent material
    4. There is no difference between residual and transported parent material
20. ***What factors make up the Hans Jenny equation for soil formation?***
    1. Climate, organisms, relief or topography, parent materials, and time
    2. Climate, organisms, parent materials, and time
    3. Climate, topography, parent materials, and time
    4. Climate, organisms, relief or topography, and time
21. ***What is the definition of residual parent material?***
    1. Parent material that is transported to a different location
    2. Parent material that develops in place from weathering of underlying rock
    3. Parent material that is the same as transported parent material
    4. There is no such thing as residual parent material
22. ***Which of the following is NOT one of the factors in the Hans Jenny equation for soil formation?***
    1. Climate
    2. Organisms
    3. Topography
    4. Parenting
23. ***How does the chemical and mineralogical composition of parent material influence soil formation?***
    1. It affects chemical weathering and natural vegetation
    2. It influences soil characteristics, such as texture and percolation of water
    3. It slows the development of acidity in humid climates
    4. It has no influence on soil formation
24. ***What is the definition of transported parent material?***
    1. Parent material that develops in place from weathering of underlying rock
    2. Parent material that is moved to a different location
    3. Parent material that is the same as residual parent material
    4. There is no such thing as transported parent material
25. ***Which of the following is NOT one of the major environmental factors that control the formation of soils according to Hans Jenny?***
    1. Climate
    2. Organisms
    3. Time
    4. Parenting
26. ***What is the definition of soil texture?***
    1. The percolation of water through the soil profile
    2. The translocation of fine soil particles and plant nutrients
    3. The size distribution of mineral particles in the soil
    4. The color and chemical composition of the soil
27. ***How does climate influence soil formation?***
    1. It primarily affects precipitation and temperature
    2. It influences the chemical and mineralogical composition of parent material
    3. It affects the percolation of water through the soil profile
    4. It has no influence
28. ***Which of the following is the most influential factor acting on parent material?***
    1. Climate
    2. Time
    3. Biota
    4. Topography
29. ***Which climatic variables are most effective in influencing soil formation?***
    1. Precipitation and time
    2. Temperature and biota
    3. Precipitation and temperature
    4. Temperature and time
30. ***How does precipitation become effective in influencing soil formation?***
    1. By seasonal distribution
    2. By evaporation
    3. By topography
    4. All of the above
31. ***What happens to the rates of biochemical reactions for every 10°C rise in temperature?***
    1. They remain the same
    2. They increase slightly
    3. They double
    4. They decrease
32. ***Which factor influences the organic matter content of soil mostly?***
    1. Temperature
    2. Time
    3. Biota
    4. Topography
33. ***What happens when warm temperatures and abundant water are present in the soil profile at the same time?***
    1. Weathering, leaching, and plant growth will be minimized
    2. Weathering, leaching, and plant growth will be maximized
    3. Weathering and leaching will be maximized, but plant growth will be minimized
    4. Weathering and plant growth will be maximized, but leaching will be minimized
34. ***How do living organisms enhance soil formation?***
    1. By reducing soil erosion rates
    2. By slowing down the rate of mineral surface soil removal
    3. By accumulating organic matter, mixing profiles, and cycling nutrients
    4. By producing organic acids that bring iron and aluminum into solution
35. ***Which of the following is not an invertebrate animal that can affect soil formation?***
    1. Earthworms
    2. Ants
    3. Rats
    4. Snakes
36. ***What is a catena?***
    1. Soils that commonly occur together in the landscape in sequence
    2. A toposequence
    3. A type of parent material
    4. A measurement of soil pH
37. ***What properties do soils in a catena generally show?***
    1. Properties that reflect the influence of topography on water movement and drainage
    2. Properties that reflect the influence of climate on organic matter accumulation
    3. Properties that reflect the influence of biota on nutrient cycling
    4. Properties that reflect the influence of time on weathering rates
38. ***What is a toposequence?***
    1. A type of catena
    2. A type of parent material
    3. A measurement of soil pH
    4. A type of organic matter
39. ***How much new soil material does the weathering of rock generally create per year?***
    1. 0.01–0.1 mm
    2. 0.1–1 mm
    3. 1–2 mm
    4. 2–3 mm
40. ***When we speak of a “young” or a “mature” soil, what are we referring to?***
    1. The age of the soil in years
    2. The degree of weathering and profile development
    3. The type of parent material
    4. The type of vegetation cover
41. ***Which factor interacts with time in soil formation?***
    1. Climate
    2. Biota
    3. Topography
    4. All of the above
42. ***In what type of climate and parent material will weathering and soil profile differentiation proceed more rapidly?***
    1. Cold and dry climate with resistant parent material
    2. Warm climate with much rain falling on permeable parent material rich in reactive minerals
    3. Warm and humid climate with sandy parent material
    4. Cold and humid climate with clayey parent material
43. ***Which of the following is an example of a transformation process in soil formation?***
    * 1. Transport of organic matter from outside sources
      2. Leaching of dissolved substances to groundwater
      3. Weathering of primary minerals to form silicate clays
      4. Loss of water through evaporation and plant use
44. ***What is the most common translocation agent in soil formation?***
    * 1. Wind
      2. Animals
      3. Water
      4. Humans
45. ***What is an example of an addition process in soil formation?***
    * 1. Erosion of surface materials
      2. Loss of organic acids produced by microorganisms
      3. Input of organic matter from fallen plant leaves and roots
      4. Transport of B and C horizon material to the surface by termites
46. ***What is an example of a loss process in soil formation?***
    * 1. Formation of new minerals that include silicate clays
      2. Mixing of surface organic litter into the A and B horizons by certain earthworms
      3. Grazing by animals or harvest by people, which can remove large amounts of organic matter and nutrient elements
      4. Change in the size and/or arrangement of mineral particles
47. ***Which of the following is NOT a type of material that can be translocated within a soil profile?***
    * 1. Fine clay particles
      2. Dissolved salts
      3. Dissolved organic substances
      4. Gases
48. ***What is the main cause of loss of water in soil formation?***
    * 1. Leaching to groundwater
      2. Erosion of surface materials
      3. Evaporation and plant use
      4. Transport of organic matter from outside sources
49. ***Which of the following is an example of physical modification of soil materials?***
    * 1. Weathering of primary minerals
      2. Decomposition of plant root and litter to form soil organic matter
      3. Change in the arrangement of mineral particles
      4. Input of organic matter from fallen plant leaves and roots
50. ***What is an example of chemical modification of soil materials?***
    * 1. Transport of B and C horizon material to the surface by termites
      2. Leaching of dissolved substances to groundwater
      3. Formation of new minerals that include silicate clays
      4. Loss of water through evaporation and plant use
51. ***What is an example of a transformation process that involves the decomposition of plant root and litter?***
    * 1. Weathering of primary minerals
      2. Loss of organic acids produced by microorganisms or plant roots
      3. Formation of new minerals that include silicate clays
      4. Decomposition products recombining into new minerals that include silicate clays and oxides of iron and aluminum
52. ***Which of the following is an example of an addition process that can occur in arid regions?***
    * 1. Input of organic matter from fallen plant leaves and roots
      2. Transport of B and C horizon material to the surface by termites
      3. Addition of salts or silica dissolved in the groundwater and deposited near or at the soil surface when the rising water evaporates
      4. Animals and people contributing additions such as manure and fertilizers
53. ***What is an example of a loss process that can cause the surface horizon to become relatively sandier and less rich in organic matter?***
    * 1. Erosion of surface materials
      2. Formation of new minerals that include silicate clays
      3. Input of organic matter from fallen plant leaves and roots
      4. Loss of organic acids produced by microorganisms or plant roots
54. ***Which of the following is an example of a transformation process that can change the size of mineral particles?***
    * 1. Leaching of dissolved substances to groundwater
      2. Decomposition of plant root and litter to form soil organic matter
      3. Weathering of primary minerals to form various kinds of silicate clays
      4. Input of organic matter from fallen plant leaves and roots