Multiple Choice Questions  
Choose the best answer!

1. In its most general sense, climate is _______________.
   a. based on vegetation types alone
   b. a model of reality that is too simplistic to be useful
   c. the average weather of a region
   d. a reflection of solar insolation values and placement in relationship to tidal action

2. What two major factors influence the annual cycle of air temperature experienced at a station?
   a. latitude and longitude
   b. longitude and location in relationship to the coast
   c. latitude and coastal versus continental location
   d. annual solar insolation and latitude

3. Why are there numerous marine terraces along the California Coast?
   a. Urban spread has changed the coast line
   b. Longshore currents form riptides that terrace the landscape
   c. Because sea level has risen since the Last Glacial Maximum
   d. Because the coast of California has been steadily rising due to tectonic forces

4. The tropical desert climates are caused by _______________.
   a. distance from the coast
   b. their placement in relationship to the Prime Meridian
   c. their distance from the equator and the Arctic circle
   d. stationary subtropical cells of high pressure with descending air

5. The precipitation region known as the polar desert is noted for:
   a. extremely cold, dry air with high relative humidity
   b. extremely cold, dry air with high specific humidity
   c. extremely cold, wet air with high specific humidity
   d. extremely cold, dry air with low relative humidity

6. A geographic feature common to dry climates is _______________.
   a. no permanently flowing streams
   b. a surface covered with dry lakes
   c. a complete lack of precipitation
   d. high surface winds

7. Semiarid climates are noted for _______________.
   a. a complete lack of vegetation
   b. a surface covered with dry lakes
   c. steppes with sparse grasslands
   d. high surface winds

8. The __________ air mass is drawn onshore over Asia during the summer monsoon season.
   a. mP
   b. cP
   c. cT
   d. mT
9. A _______________ refers to a semiarid area where some grasses grow in response to a short
   wet season.
   a. desert
   b. savanna
   c. grassland
   d. steppe

10. The _______________ climate is renowned for its very scarce precipitation during
    the summer season.
    a. moist subtropical
    b. dry subtropical
    c. Mediterranean
    d. ice-sheet

11. Within an ecosystem, energy transformations occur through a series of levels commonly
    referred to as the food web, within which plants and algae represent the _____________.
    a. secondary producers
    b. primary consumers
    c. primary producers
    d. decomposers

12. During the nitrogen cycle, the process in which certain soil bacteria convert nitrogen from
    usable forms (NO\textsubscript{X}) back to N\textsubscript{2} is called _____________.
    a. nitrification
    b. nitrogen fixation
    c. denitrification
    d. nitrogen consumption

13. Plants that adapt to drought conditions are:
    a. tropophytes
    b. epiphytes
    c. xerophytes
    d. hydrophytes

14. Which of the following is an edaphic factor important in differentiating habitat?
    a. soil texture
    b. time
    c. light
    d. all of the above

15. Pioneer species typically are:
    a. well adapted to dry soil conditions
    b. able to withstand temperature extremes
    c. larger than other species that replace them
    d. all of the above
    e. a and b

16. The highest biodiversity on Earth is found in:
    a. tropical and equatorial regions
    b. midlatitude regions
    c. alpine regions
    d. subarctic and arctic regions
17. The _______________ biome develops in regions with moderate shortages of soil water.
   a. forest
   b. savanna
   c. desert
   d. grassland

18. Which dry biome is represented by an open cover of trees with grasses and herbs underneath?
   a. forest
   b. desert
   c. grassland
   d. savanna

19. Of the following climates, which has a strong wet-dry alternation and many of the plants have xerophytic adaptations?
   a. Mediterranean
   b. tundra
   c. tropical
   d. polar

20. _______________, found in equatorial and tropical latitude zones, are very diverse, containing large numbers of plant and animal species.
   a. Low-latitude rainforest
   b. Monsoon forest
   c. Subtropical evergreen forest
   d. Needleleaf forest

21. Trees within the ________________ occur in two forms: broadleaf and needleleaf.
   a. low-latitude rainforest
   b. monsoon forest
   c. Mediterranean Sclerophyll forest
   d. subtropical evergreen forest

22. Needleleaf forests are noted for ________________.
   a. their lack of species
   b. the low level of shade they provide
   c. evergreens that hold on to their needles for about a year
   d. poor quality pulp wood

23. According to a report issued by the United Nations Food and Agriculture Organization, ____________ of the world’s rainforest is lost annually to other uses.
   a. five percent
   b. one percent
   c. ten percent
   d. less than one percent

24. Plants of the _______________ grow, bloom and set seed during a short summer thaw following harsh cold winters.
   a. desert biome
   b. tundra biome
   c. grassland biome
   d. savanna biome
25. The annual rhythm of leaf shedding by deciduous trees is determined by:
   a. light, and to a lesser extent, temperature
   b. heat
   c. wind
   d. moisture

26. Soil scientists use the term __________ to describe finely divided, partially decomposed organic matter in soils.
   a. colloid
   b. peat
   c. organic residue
   d. humus

27. Soils of the Midwest prairies have a black or dark brown colour because they contain abundant particles of ________.
   a. peat
   b. humus
   c. magnesium
   d. iron

28. Soil colloids tend to be __________ charged because of their molecular structure, and thus attract and hold __________ charged plant nutrients such as ________.
   a. positively, negatively, CO$_3^{2-}$ and SO$_4^{2-}$
   b. positively, negatively, Ca$^{2+}$, Mg$^{2+}$, K$^+$ and Na$^+$
   c. negatively, positively, Ca$^{2+}$, Mg$^{2+}$, K$^+$ and Na$^+$
   d. negatively, positively, CO$_3^{2-}$ and SO$_4^{2-}$

29. High soil acidity is typical of __________ climates.
   a. cold, humid
   b. cold, dry
   c. warm, humid
   d. warm, dry

30. Surplus water stored in the soil usually __________.
   a. evaporates
   b. transpires
   c. undergoes evapotranspiration
   d. percolates down to the ground water zone

31. In __________ climates organic matter accumulates in soils while in comparison, it is relatively scarce in __________ climates.
   a. cold, warm
   b. dry, wet
   c. warm, cold
   d. wet, dry

32. What is the most important factor in determining evaporation rates, and thus water need ($E_p$)?
   a. soil water quantity
   b. precipitation
   c. water use
   d. temperature
33. ______________, the predominant element of the Earth’s crust, accounts for almost ________ of the total percentage of weight.
   a. Iron, two-thirds
   b. Silicon, one-half
   c. Aluminum, one-quarter
   d. Oxygen, one-half

34. A _____________ is a naturally occurring, inorganic substance that usually possesses a definite chemical composition and characteristic atomic structure.
   a. crystal
   b. mineral
   c. rock
   d. metamorphic rock

35. ___________ can broadly be defined as an assemblage of minerals in the solid state.
   a. Sedimentary rock
   b. Igneous rock
   c. Metamorphic rock
   d. Rock

36. ___________ are formed from layered accumulations of mineral particles derived mostly by weathering and erosion of preexisting rocks.
   a. Sedimentary rocks
   b. Igneous rocks
   c. Metamorphic rocks
   d. volcanic rocks

37. Quartz and feldspar form a silicate mineral group described as ______________.
   a. mafic
   b. intermediate
   c. felsic
   d. siliceous

38. Igneous rocks solidify from rock in a hot, molten state, known as ______________.
   a. ash
   b. molten rock
   c. slag
   d. magma

39. Intrusive igneous rocks are noted for their:
   a. large mineral crystals
   b. interesting mineral composition
   c. hardness, compared to extrusive igneous rocks
   d. darker colors

40. A very large body of intrusive igneous rock is called a _____________.
   a. batholith
   b. regolith
   c. crouton
   d. fracton
41. Near the Earth’s surface, a chemical alteration process known as _______________ occurs when oxygen dissolved in soil or groundwater reacts with the minerals.
   a. hydrolysis
   b. oxidation
   c. dissolution
   d. solution

42. Shale, the most abundant of all sedimentary rocks, is formed largely of _______________.
   a. clay minerals and silt
   b. sand grains and gravel
   c. talc
   d. organic products

43. One of the most common sedimentary rocks formed by biologic or chemical precipitation at low temperature is _______________, composed largely of the mineral calcite.
   a. Marble
   b. Hornblende
   c. Augite
   d. Limestone

44. Natural gas is predominantly composed of _____________.
   a. carbon dioxide
   b. ethane
   c. methane
   d. propane

45. The metamorphic equivalent of conglomerate, sandstone and siltstone is _______________, which is formed by the addition of silica to fill completely the open spaces between the grains.
   a. slate
   b. quartzite
   c. schist
   d. marble

46. A high grade metamorphic rock that is strongly banded into light and dark layers is called a _______________.
   a. schist
   b. slate
   c. gneiss
   d. marble

47. Enclosing the metallic core of the Earth is the ____________, a rock shell about 2900 kilometers thick.
   a. asthenosphere
   b. mantle
   c. moho layer
   d. lithosphere

48. Within the boreal forest of north-central and eastern Siberia, the dominant _______________ tree sheds its needles in winter and is thus a deciduous needleleaf tree.
   a. spruce
   b. pine
   c. larch
   d. cedar
49. The upper layer of continental crust is made up of ____________ rock.
   a. mafic
   b. ultramafic
   c. felsic
   d. serpentine

50. Ocean bottom crust is made up almost entirely of ____________ rock.
   a. mafic
   b. ultramafic
   c. felsic
   d. serpentine

51. ____________ are plant forms in which algae and fungi live together to form a single plant structure.
   a. Lianas
   b. Herbs
   c. Lichen
   d. Moss

52. Some continental margins are ____________ and accumulate thick deposits of continental sediments while other continental margins are ____________ and have trenches marking the location at which ocean crust is sliding beneath continental crust.
   a. passive; active
   b. active; passive
   c. passive; tectonic
   d. submerging, emerging

53. The large flat expanses of ocean floor between the continental margins and midocean ridges are called ____________.
   a. abysmal plains
   b. abyssal plains
   c. sea floor rises
   d. continental shelves

54. The process in which one plate is carried beneath another is called ____________.
   a. advection
   b. convection
   c. liposuction
   d. subduction

55. The San Andreas Fault forms a ____________ boundary between the Pacific plate and the North American plate.
   a. transform
   b. converging
   c. spreading
   d. subduction

56. Alfred Wegener, a German meteorologist and geophysicist, suggested in 1915 that the continents had once been adjoined as a supercontinent he named ____________.
   a. Wegener Land
   b. Gondwanaland
   c. Pangea
   d. Laurasia
57. The ______________ of the magma present within a volcano primarily determines whether the volcanic will erupt explosively or quietly.
   a. temperature
   b. viscosity
   c. pressure
   d. chemistry

58. Occasionally, stratovolcanoes erupt so violently that the entire central portion of the volcano collapses into its empty magma chamber to subsequently form a water-filled volcanic lake called a ___________.
   a. caldera
   b. guyot
   c. cinder cone
   d. batholith

59. Rapid mixing of volcanic ash and the water produced by the flash melting of ice and snow that has accumulated at the tops of some dormant stratovolcanoes produces a deadly mud avalanche known as a(n) __________.  
   a. debris flow
   b. rock fall
   c. lahar
   d. mudslide

60. The chain of Hawaiian volcanoes was created by the motion of the ________ plate over a __________.
   a. Nazca, trench
   b. Cocos, trench
   c. Cocos, hotspot
   d. Pacific, hotspot

61. Compression leads to the folding of the crust which results in the formation of ________________.
   a. anticlines and synclines
   b. synclines and troughs
   c. upfolds and troughs
   d. troughs and anticlines

62. A __________ in the brittle rocks of the Earth’s crust occurs when rocks suddenly yield to unequal stresses by fracturing.
   a. break
   b. fault
   c. crack
   d. scarp

63. A narrow block dropped down between two normal faults is a ________________.
   a. horst
   b. graben
   c. deep valley
   d. shallow valley

64. Biogenic oozes refer to
   a. Swampy, peat-filled areas
   b. Ocean sediment made of mixtures of microscopic calcareous and siliceous shells
   c. Pre-lignitic peat
   d. Anthracitic peat
65. Manganese nodules are found:
   a. in highly weathered tropical soils
   b. in association with oceanic basalts
   c. in association with oceanic felsic continental granites
   d. at the surface of the sediment in the deep ocean very far from land

66. Baleen whales feed on
   a. large mammals and fish such as herring, tuna and Seals
   b. are filter feeders who eat microscopic organisms such as crill and copepods
   c. other whales
   d. giant squid in the deep sea

67. Coral reefs are found:
   a. in clear shallow waters of the tropics
   b. clear shallow waters of the mid-latitudes
   c. in nutrient-rich waters of the ocean gyres
   d. in nutrient-poor waters of the ocean gyres

**True/False Questions**  
A = True; B = False

68. True/False  The wet equatorial climate receives its precipitation from convectional rainfall.
69. True/False  The wet-dry tropical climate is distinguished by a very dry season at low sun that alternates with a very wet season at high sun.
70. True/False  Boreal forest climates have short, cool summers and long, bitterly cold winters.
71. True/False  Warm air can hold more moisture than can cold air.
72. True/False  A steppe is a vast expanse of semiarid grassland.
73. True/False  Few plant and animal species are found in the equatorial rainforest.
74. True/False  The higher the temperature, the slower the decay process of organic soil components.
75. True/False  Perennials are plants that live for a year and then die.
76. True/False  Animals, including insects, dominate any biome in terms of total mass because of their large numbers.