Ecology (Canadian) 4th edition Molles Test Bank

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MULTIPLE CHOICE. Choose the one alternative that best completes the statement or answers the question.

1) A biome is characterized primarily by
   A) flora and fauna.
   B) soil structure and flora.
   C) temperature and moisture.
   D) climate and predominant plant types.
   E) global weather patterns.

Answer: D

2) All of the following factors lead to climatic variation on earth **except**:
   A) spherical shape of the earth
   B) earth's axial rotation as it orbits the sun
   C) coriolis effect
   D) atmospheric circulation
   E) uneven heating of the earth's surface

Answer: C

3) All of the following statements concerning wind are true **except**:
   A) westerlies blow toward the south pole in the southern hemisphere
   B) northeast trade winds blow toward the poles
   C) southeast trade winds blow toward the equator
   D) polar easterlies blow toward the equator
   E) westerlies blow toward the north pole in the northern hemisphere

Answer: B

4) Warm tropical air
   A) cools as it ascends
   B) is dense and sinks
   C) has a low evaporative potential
   D) meets cool polar air causing precipitation in the tropics
   E) warms as it ascends

Answer: A

5) Deserts are formed because
   A) cool, dry air absorbs moisture from the land below as it falls, creating deserts at approximately 30° north and south latitudes
   B) warm air at the equator takes moisture with it as it rises, leaving equatorial deserts
   C) cool air rises from the deserts, taking moisture with it
   D) global warming causes the moisture in the ground to evaporate faster, leaving behind dry desert soils
   E) the Coriolis effect causes the moisture to be carried sideways towards the earth's oceans, leaving behind dry land masses

Answer: A

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6) Rainfall in tropical rain forests is a result of:
A) The Coriolis effect carrying moisture from the warm tropical oceans above the land mass where it falls as rain
B) Ferrel cells carrying moisture from the temperate forests towards the equator, where it condenses and falls as rain
C) Transpiration from the trees of the rainforest creating rain clouds above the forests
D) The cooling of the warm tropical air as it rises above the equator, causing moisture to condense out and form rain clouds
E) Cold air from Polar cells meeting with warm air from Hadley cells, causing the Hadley cells to release their moisture

Answer: D

7) All of the following statements are true **except**:
A) C horizon: weathered parent material
B) LFH horizon: mineral material
C) B horizon: deposition of clay and humus
D) A horizon: mixture of organic and mineral materials
E) O horizon: organic layer

Answer: B

8) There are(is) _____ circulation air cell(s) per hemisphere, _____ total for the earth.
A) 4; 8 B) 1; 2 C) 5; 10 D) 2; 4 E) 3; 6

Answer: E

9) Climate diagrams provide all of the following information **except**:
A) temperature and precipitation variations
B) wind patterns
C) water availability for terrestrial plants
D) wet and dry season durations
E) average minimum temperature above and below 0ºC

Answer: B

10) Most of the earth's deserts are
A) located at 30º north and south latitudes
B) located at 60º north and south latitudes
C) located at 0º latitude
D) located at 90º north and south latitudes
E) randomly scattered around the earth's surface

Answer: A

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11) All of the following factors influence soil structure **except**:
A) parent material
B) age
C) climate
D) organisms
E) wind patterns
Answer: E

12) All of the following statements are true **except** that:
A) Tundra is cold and wet.
B) Temperate grasslands receive a moderate amount of precipitation during the growing season, but can also experience lengthy droughts.
C) In a desert, evaporation exceeds precipitation.
D) Taiga usually has moderate temperatures with occasional droughts.
E) Tropical rain forests are continuously warm and wet.

Answer: A

13) Atmospheric circulation and precipitation patterns are influenced by all of the following, **except**:
A) presence/absence of flora
B) differential ability of cool and warm air masses to hold water vapour
C) Coriolis effect
D) uneven heating of the earth's surface and atmosphere by the sun
E) rising and sinking of warm and cool air masses
Answer: A

14) The _____ is a depositional horizon that contains clays, humus, and other materials which may form distinct banding patterns.
A) C horizon B) O horizon C) B horizon D) A horizon E) D horizon
Answer: C

15) Terrestrial biomes are
A) Generally defined areas of land that share common soil characteristics and similar plant species
B) Characterized by the microfauna found in the A horizon of their soils
C) Rigidly defined areas of land that always have the exact same combination of soil characteristics and plant species
D) Found in well defined, clearly outlined areas on a world map
E) Land masses characterized only by their average monthly temperature
Answer: A

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16) Which of the following biomes have fertile soils that contain large quantities of organic matter?
A) tropical rain forest
B) tropical savanna
C) Mediterranean woodland and shrubland
D) tundra
E) temperate forest
Answer: E

17) Which of the following is **not** a characteristic of the boreal forest?
A) home to moose and migratory caribou
B) sparse plant cover
C) low fertility, thin, acidic soil
D) thick layer of plant litter that ties up nutrients
E) dominated by evergreen conifers such as spruce and fir
Answer: B

18) Which of the following is **not** true for the Ecozones of Canada?
A) like biomes, they are mainly based on climate and major vegetation
B) they are relevant to the terrestrial and marine environments
C) they are less specific than ecoregions
D) they are more specific than biomes
E) new maps need to be drawn every few years because their boundaries are rapidly changing
Answer: E

19) The sun is directly above the equator during the _____.
A) spring equinox
B) spring and autumnal equinox
C) autumnal equinox
D) summer solstice
E) winter solstice
Answer: B

20) Hadley, Ferrel, and Polar cells are:
A) Cells of warm air that move north from the equator
B) Cells of cool air that move down from the polar regions
C) Caused by the Coriolis effect
D) Caused by the tilt of the earth on its axis
E) Atmospheric cells (thermal air loops) on either side of the equator
Answer: E

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21) Atmospheric cells, in order from the equator to the poles are called:
A) Hadley, Polar, and Ferrel cells
B) Ferrel, Hadley, and Polar cells
C) Polar, Hadley, and Ferrel cells
D) Polar, Ferrel, and Hadley cells
E) Hadley, Ferrel, and Polar cells
Answer: E

22) Coriolis effect causes winds in the
A) Temperate latitudes to be predominantly westerlies
B) Southern Hemisphere to deflect to the right
C) Northern Hemisphere to deflect to the left
D) High latitudes to be predominantly westerlies
E) Tropical latitudes to be predominantly easterlies
Answer: A

23) A climate diagram shows temperature and precipitation. The points at which the precipitation line lies above the temperature line indicates:
A) Areas with predominantly warm wet climates.
B) The periods of time when there is adequate moisture for plant growth.
C) The number of growing degree days.
D) Areas with predominantly cool wet climates.
E) The periods of time when the temperature is suitable for plant growth.
Answer: B

24) Soils have been referred to as "the poor man's tropical rainforest" because:
A) They are most diverse in the tropical rain forest
B) They contain many endangered species of microfauna
C) They are moist, warm environments
D) They have very high amounts of undescribed biodiversity and are inexpensive to study
E) They have very high amounts of well-described biodiversity and are inexpensive to study
Answer: D

25) Which soil horizon is most influenced by parent material?
A) O
B) B
C) A
D) C
E) All are equally influenced
Answer: D

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26) In which of the following two biomes would ecologists find similar precipitation but different temperatures?
A) boreal forests and tundra
B) tundra and desert
C) boreal forests and tropical rain forests
D) temperate grassland and tundra
E) temperate forest and tropical rain forests
Answer: B

27) Climate plays an important role in shaping the structure of soils via all of the following mechanisms, **except**:
A) development and maintenance of air spaces
B) weathering of parent material
C) leaching of organic and inorganic material
D) erosion
E) decomposition of organic matter
Answer: A

28) Survival on land is a challenge for many terrestrial organisms. Which of the following is **not** a means by which terrestrial organisms are able to cope?
A) high body fat content
B) woody tissues
C) endoskeleton
D) sweating and panting
E) physiological mechanisms to lower the freezing point of water
Answer: A

29) Which biome is characterized by short shrubby plants and permafrost?
A) Tundra
B) Desert
C) Boreal Forest
D) Temperate Forest
E) Temperate Grassland
Answer: A

30) A climate diagram with the precipitation line below the temperature line from January to May and November to December indicates that:
A) the dry season is from May to November
B) evaporation exceeds precipitation from May to November
C) there is enough water for plant growth throughout the year
D) there is not enough water for plant growth between May and November
E) the wet season is from May to November
Answer: E

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31) A climate diagram for a city in the northern hemisphere shows a gold-shaded area from January through December, and all months of the year are shaded red. This city is most likely in which biome?
A) Tundra
B) Desert
C) Temperate Grassland
D) Boreal Forest
E) Tropical Rain forest
Answer: B

32) Soils in temperate deciduous forests are typically high nutrient because of:
A) low temperatures, low rainfall, and low biological activity
B) high temperatures, high rainfall, and high biological activity
C) low organic matter, high decomposition, and high biological activity
D) high organic matter, moderate decomposition, and moderate biological activity
E) low organic matter, low decomposition, and low biological activity
Answer: D

33) Boreal forests are found only in the northern hemisphere because
A) There are no large enough land masses between 50° and 65° S latitude to accommodate vast expanses of boreal forest.
B) the atmospheric cells that create the climatic conditions for boreal forests occur only in the northern hemisphere.
C) The climate in the southern hemisphere is too inconsistent for boreal forests to grow.
D) Because of the earth's tilt, the southern hemisphere does not get enough sunlight for coniferous trees to grow.
E) The seeds of the coniferous trees have not spread to the southern hemisphere so boreal forests are unable to develop.
Answer: A

34) Temperate forests once covered much more of the earth than they do now. What is the major reason for this decrease in temperate forest area?
A) Human activities such as urban development and agriculture have caused the destruction of much of the temperate forest.
B) The melting of the polar ice caps has caused water levels to rise such that much of what was once temperate forest is now under water.
C) The tilt of the earth on its axis has changed in the past century, which changes the amount of sun exposure between 45° and 55° latitude.
D) Global warming has changed the climate such that the deciduous trees characteristic of this biome can no longer survive.
E) Many of the animal species that contributed to the biology of the temperate forest have gone extinct.
Answer: A

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35) A major threat to the far north tundra biome is
A) Deforestation to support the building of houses
B) Extraction of fossil fuels and minerals
C) Use of land for agriculture
D) Water diversion for human consumption
E) Urban development
Answer: B

TRUE/FALSE. Write 'T' if the statement is true and 'F' if the statement is false.

36) Urban and agricultural ecosystems can have detrimental effects not only in their local area, but also on parts of the biome much farther away.
Answer: True False

37) Human agricultural activity frequently leads to a loss of biodiversity.
Answer: True False

38) Human activities can alter local climates and change aspects of a biome.
Answer: True False

39) Mycorrhizae are parasitic fungi that are depleting tropical trees of nutrients.
Answer: True False

40) Urban and agricultural ecosystems are considered human-dominated biomes.
Answer: True False

41) As altitude increases temperatures decrease, likewise as latitude decreases temperatures decrease.
Answer: True False

42) The O horizon is found mainly in terrestrial environments, whereas the equivalent layer in aquatic environments is called the LFH horizon.
Answer: True False

43) Trade winds move toward the equator.
Answer: True False

44) In general, warm air can hold more moisture than cool air and therefore has a stronger evaporative effect.
Answer: True False

45) The prevailing winds on Earth do not blow in a straight north-south direction because of the Ferrel effect.
Answer: True False

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46) The prevailing winds in temperate regions are the *westerlies*, while those in the polar regions are the easterlies and those near the equator are called northeast or southeast trade winds.
Answer: True ✓ False

47) On a climate diagram, red shading on all of the months across the bottom indicates that there is insufficient moisture for plant growth all year long.
Answer: True ✓ False

48) A climate diagram that shows little fluctuation in average monthly temperature would most likely indicate that a locality is found near the arctic circle.
Answer: True ✓ False

49) Two terrestrial locations have similar soil structure and similar climate diagrams. The plant species are similar, but not identical and there are different animal species. Although there is some variation in the species found, the locations could still belong to the same biome.
Answer: ✓ True False

50) Temperate grasslands have a deep LFH layer that is rich in organic matter and makes the soil fertile.
Answer: ✓ True False

51) The precipitation in moist temperate regions is caused by the meeting of cool polar air and warm subtropical air.
Answer: ✓ True False

52) In the region between the tropics of Cancer and Capricorn, seasonal variations in temperature and day length at low elevation are slight.
Answer: ✓ True False

53) The boreal forest is the largest biome in terms of area in the southern hemisphere.
Answer: True ✓ False

54) Old-growth boreal forests contain sequoias, the largest living organisms on earth.
Answer: True ✓ False

55) The largest biome in North America is the temperate grassland.
Answer: ✓ True False

56) Desert soils are often low in organic matter.
Answer: ✓ True False

57) Evaporation of water from some desert soils could lead to the formation of salt crystals.
Answer: ✓ True False

58) The term for the biome characterized by a landscape of mosses, lichens, and dwarf willows, dotted with small ponds and laced with clear streams is the boreal forest.
Answer: True ✓ False

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1) D
2) C
3) B
4) A
5) A
6) D
7) B
8) E
9) B
10) A
11) E
12) A
13) A
14) C
15) A
16) E
17) B
18) E
19) B
20) E
21) E
22) A
23) B
24) D
25) D
26) B
27) A
28) A
29) A
30) E
31) B
32) D
33) A
34) A
35) B
36) TRUE
37) TRUE
38) TRUE
39) FALSE
40) FALSE
41) FALSE
42) FALSE
43) TRUE
44) TRUE
45) FALSE
46) FALSE
47) FALSE
48) FALSE
49) TRUE
50) TRUE

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51) TRUE
52) TRUE
53) FALSE
54) FALSE
55) TRUE
56) TRUE
57) TRUE
58) FALSE

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