Marine Biology 6th edition Levinton Test Bank

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Test Bank

to accompany

Marine Biology: Function, Biodiversity, Ecology, 5e

by Jeffrey S. Levinton

Chapter 2
The Oceanic Environment

1. Submarine canyons are found in
a. Mid-oceanic ridges
b. The continental slope
c. Estuaries
d. The abyssal plain
Answer: b

2. Which of the following slopes corresponds most closely to that of the continental slope?
a. 10 degrees
b. 3 degrees
c. 0.1 degrees
d. 20 degrees
Answer: b

3. Which of the following is the deepest?
a. Abyssal
b. Hadal
c. Continental slope
d. Continental rise
Answer: b

4. Marginal seas tend to have properties that differ from the adjacent open ocean because
a. Local evaporation may be high relative to precipitation
b. Marginal seas usually have restricted circulation with the adjacent open ocean
c. Local river input might reduce the salinity of the marginal sea
d. All of the above
Answer: d

5. The abyssal plain
a. Drains large river systems such as the Amazon River
b. Is an average of about 4,000 m deep
c. Actually has a slope of 3 degrees seaward
d. Never connects with an oceanic trench
Answer: b

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6. As one proceeds away from a mid-oceanic ridge
a. One finds that first the ridge is magnetically neutral, but then there is a polar magnetic field
b. The oceanic crust becomes younger and younger
c. The oceanic crust becomes older and older
d. The ridge has a reversed magnetic field, which reflects its formation many thousands of years ago
Answer: c

7. Parts of the oceanic crust where new crust originates are known as
a. Subduction zones
b. Mid-oceanic ridges
c. Transform faults
d. Plates
Answer: b

8. Plate boundaries include
a. Trenches
b. Mid-oceanic ridges
c. Transform faults
d. All of the above
Answer: d

9. Which of the following is a reasonable rate of seafloor spreading
a. One meter per year
b. One cm per year
c. One cm per million years
d. Ten cm per million years
Answer: b

10. A study of oceanic geology shows that there are few oceanic crustal rocks found that are older than 80 million years. Why?
a. Oceanic crust was not formed until the beginning of the Precambrian, 80 my ago.
b. Current radiometric dating techniques cannot date rocks older than 50 million years.
c. Subduction remelts oceanic rock and most has been destroyed of that age
d. Oceanic crust is only found at the ridges, which are mostly unsampled.
Answer: c

11. Which is good evidence for continental drift?
a. Reconstructions of the orientation of ancient landmasses using magnetic minerals
b. The fit of continents much like a jigsaw puzzle
c. Matches of specific geological elements from different continents, such as faults
d. All of the above
Answer: d

12. Water is a good solvent because

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a. Of the charge asymmetry of the water molecule
b. It is a good polar solvent
c. Of its high transparency
d. All of the above
Answer: a

13. Seasonal temperature changes are the greatest in
a. Polar waters
b. The equatorial region
c. Midlatitudes
d. The deep sea
Answer: c

14. Many elements in seawater are found in constant ratios throughout the ocean because
a. The input of dissolved substances from rivers is broadly constant throughout the ocean
b. Dissolved material in the ocean has been there for millions of years, with no input or removal
c. They remain in the ocean longer than the mixing time
d. This is not true; no elements are generally found in constant ratios
Answer: c

15. Trace elements in sea water include
a. Chlorine and potassium
b. Sodium and aluminum
c. Iron and strontium
d. Sodium and chlorine
Answer: c

16. Salinity is often estimated by chlorinity because
a. Chlorine is the only major element of sea water
b. Chlorine is in constant ratio to sodium and other major elements
c. Chlorine can be separated from the rest of sea water simply by evaporation
d. Salinity is not estimated by chlorinity but by sodium concentration
Answer: b

17. Which of the following is a typical range of open-ocean salinity in practical salinity units?
a. 5–10
b. 32–38
c. 40–50
d. 15–18
Answer: b

18. Which of the following does *not* decrease salinity?
a. Precipitation
b. Sea ice formation
c. River water flow
d. Melting of sea ice

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Answer: b

19. Practical salinity units are based upon
a. The conductivity of sea water
b. The mass of salts found after evaporating a sea water sample
c. The carbon content of sea water
d. The chlorine plus calcium concentration of sea water
Answer: a

20. Salt has the following effect on sea water
a. Reduces the bulk density
b. Decreases its light transmission
c. Lowers its freezing point
d. Causes it to rise to the surface
Answer: c

21. Ultraviolet light is important because
a. It is harmful to marine life, owing to the damage it does to DNA
b. It penetrates much deeper than other wave lengths of light and is important in photosynthesis
c. It causes beneficial warming of living tissues
d. It stimulates protein synthesis
Answer: a

22. The Coriolis effect causes a deflection to the right in
a. The Southern Hemisphere
b. The Equator
c. The Northern Hemisphere
d. The Poles
Answer: c

23. The Coriolis effect does *not* operate when
a. Traveling east in the Northern Hemisphere
b. Traveling east at latitude 45 degrees north
c. Traveling east at the Equator
d. All of the above
Answer: c

24. The Coriolis effect increases
a. With increasing latitude
b. With increasing water depth
c. With decreasing latitude
d. Actually its effect is the same all over the Earth's surface
Answer: a

25. Oxygen is added to sea water in
a. respiration

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b. photosynthesis
c. rapid swimming by fish
d. increasing the temperature
Answer: b

26. Sea water is oxygenated on the deep-sea bottom because
a. Bottom sea water originates in shallow water in the tropics, where oxygen is abundant
b. Wind mixes oxygenated water from the surface to the deep sea
c. A small amount of photosynthesis occurs on the deep-sea bed
d. Sea water in the deep sea originates at the surface in high latitudes
Answer: d

27. Lows in dissolved oxygen are usually found
a. At the bottom of trenches
b. In mid-water depths in the eastern parts of the Pacific Ocean
c. In estuaries in summer
d. All of the above
Answer: d

28. Western ocean boundary currents such as the Gulf Stream owe their origin partially to
a. The eastward rotation of the Earth
b. A local reversal of the Coriolis effect
c. Thermohaline convection effects
d. All of the above
Answer: a

29. Upwelling on the eastern sides of oceans is controlled by
a. The Coriolis effect
b. Local winds
c. Global-scale effects on climate
d. All of the above
Answer: d

30. Gyres revolve
a. clockwise near the Antarctic peninsula
b. clockwise in the North Pacific
c. clockwise around the Equator
d. counterclockwise in the North Atlantic
Answer: b

31. Pycnoclines are
a. Vertical gradients in temperature only
b. Vertical gradients in sea water density
c. Vertical gradients in oxygen concentration
d. Small-scale changes in current structure
Answer: b

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32. The motion of wind-driven waves affects the bottom
a. At all depths
b. Only in water depths less than 20 m
c. At depths less than half the wave length
d. At depths less than two times the wave length
Answer: c

33. Tidal forces on the ocean are affected the most by
a. The Sun in winter
b. The Sun during summer solstice
c. The Moon
d. The Moon, but only at new moon
Answer: c

34. During spring tides
a. The Sun, Moon, and Earth are in line, but the Earth can be between, or on either side of, the Sun and Moon
b. The Earth must be in line with the Sun and Moon, but the Earth must be on one side of the Sun and Moon combined
c. The Spring Solstice occurs
d. The tidal range is the least
Answer: a

35. Which of the following is true about tides?
a. There are always two high and low tides each day
b. Tidal heights are always equal
c. Tidal currents are strongest during spring tides
d. Tidal currents are strongest during neap tides
Answer: c

36. Fjords
a. Have an open connection with the ocean and are usually well oxygenated
b. Always have the same salinity as the adjacent oceanic area
c. Are never affected by tides
d. Are likely to have anoxic bottom waters
Answer: d

37. Estuaries often do not have a discrete layer of low-salinity water on top of high-salinity water because of
a. Wind mixing
b. Tidal motion
c. Basin shape
d. All of the above
Answer: d

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38. The two factors that most affect sea water density are
a. Temperature and salinity
b. Temperature and oxygen
c. Oxygen and salinity
d. Nitrogen and temperature
Answer: a

39. An oxygen minimum layer develops
a. In a fjord at low tide
b. At a depth in the water column in the open ocean in the western Pacific
c. Within the sediment, just above a burrowed zone
d. All of the above
Answer: b

40. Wave motion affects the bottom
a. When the water depth is 10 m or less
b. When a wave arrives on shore
c. When the water depth is half the wave length or less
d. When the water depth is half the wave length or more
Answer: c

41. The North Atlantic Deep Water lies above the Antarctic Bottom Water because
a. Pleistocene glaciers are the source of the Antarctic Bottom Water
b. The North Atlantic Deep Water is formed later in the season, after the Antarctic Bottom Water
c. The North Atlantic Deep Water is of lower density than the Antarctic Bottom Water
d. The Antarctic Bottom Water is a permanent feature on the seafloor and never moves
Answer: c

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