

Test Bank for Marine Biology Function Biodiversity Ecology 5th Levinton

Chapter 2

Submarine canyons are found in

- a. Mid-oceanic ridges
- b. The continental slope**
- c. Estuaries
- d. The abyssal plain

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

Which of the following is the deepest?

- a. abyssal
- b. hadal**
- c. continental slope
- d. continental rise

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**

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

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

Parts of the oceanic crust where new crust originates are known as

- a. Subduction zones
- b. Mid-oceanic ridges**
- c. Transform faults
- d. Plates

Plate boundaries include

- a. trenches
- b. mid-oceanic ridges
- c. transform faults
- d. all of the above**

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

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.

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**

Water is a good solvent because

- 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

Seasonal temperature changes are the greatest in

- a. Polar waters
- b. The equatorial region
- c. Midlatitudes**
- d. The deep sea

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

Trace elements in sea water include

- a. Chlorine and potassium
- b. Sodium and aluminum
- c. Iron and strontium**
- d. Sodium and chlorine

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

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

Which of the following does not decrease salinity?

- a. Precipitation
- b. Sea ice formation**
- c. River water flow
- d. Melting of sea ice

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

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

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

The Coriolis effect causes a deflection to the right in

- a. The Southern Hemisphere
- b. The Equator
- c. The Northern Hemisphere**
- d. The Pole

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

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

Oxygen is added to sea water in

- a. respiration
- b. photosynthesis**
- c. rapid swimming by fish
- d. increasing the temperature

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**

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**

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

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**

Gyres

- a. revolve clockwise near the Antarctic peninsula
- b. revolve clockwise in the North Pacific**
- c. revolve clockwise around the Equator
- d. revolve counterclockwise in the North Atlantic

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

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

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

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

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

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**

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**

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

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

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

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