

Part I. Multiple Choice (3 pts each)

1. Vertical migration patterns of many oceanic zooplankton are in response to:
 - a. temperature
 - b. light
 - c. lunar phases
 - d. pressure
 - e. food supply

2. The oxygen minimum zone can:
 - a. be located in mesopelagic depths
 - b. reduce the abundance of mid-water organisms
 - c. be an area of elevated bacterial populations
 - d. All of the above
 - e. None of the above

3. The Coriolis effect can influence which of the following;
 - a. tides
 - b. currents
 - c. winds
 - d. All of the above
 - e. None of the above

4. Nekton
 - a. move only with the currents
 - b. include larger fish and sea mammals
 - c. include protistan and other very small plankton
 - d. are defined as swimmers who can dive very deeply
 - e. None of the above

5. Submarine canyons are found in
 - a. mid-oceanic ridges
 - b. the continental slope
 - c. estuaries
 - d. the abyssal plain
 - e. None of the above.

6. Marginal seas tend to have properties that differ from the 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
 - e. None of the above

Page 2 of 5

7. Many elements in seawater are found in constant ratios throughout the ocean because
- the input of dissolved substances from rivers is broadly constant throughout the ocean
 - dissolved material in the ocean has been there for millions of years, with no input or removal
 - they remain in the ocean longer than the mixing time
 - This is not true; no elements are generally found in constant ratios
8. Which of the following does not decrease salinity?
- Precipitation
 - Sea ice formation
 - River water flow
 - Melting of sea ice
 - All of the above
9. Seawater is oxygenated on the deep-sea bottom because
- bottom seawater originates in shallow water in the tropics where oxygen is abundant
 - wind mixes oxygenated water from the surface to the deep sea
 - a small amount of photosynthesis occurs on the deep sea bed
 - sea water in the deep sea originates at the surface in high latitudes
 - There is no oxygen in deep sea bottom waters.
10. Plankton that spend part of their life cycle in the water column, but live as adults in the benthos are
- mixoplankton
 - meroplankton
 - pleuston
 - holoplankton
 - neuston
11. Most bony fish swim continuously
- by strong movements of the caudal fin
 - by undulations of the entire body
 - by hydro-jet propulsion
 - by contracting a web of surrounding skin
12. In the temperate zone, towards the end of the spring
- The water column becomes more stable vertically
 - The water column becomes less stable vertically
 - Mixing from below brings bottom nutrients towards the surface
 - The phytoplankton begin a secondary early summer increase
 - None of the above

Page 4 of 5

4. Why are marine food chains usually longer than terrestrial food chains?

5. How does the thermocline affect the distribution of nutrients in the ocean? Give two specific geographic examples.

Part III. Long answer (12 pts each).

1. Draw a cross-section of an ocean, ranging from land to deep water and note the major benthic and pelagic habitats and divisions.