

Advanced Marine Science

Oceanography · Answer Key · 8 Questions

1. Which process is primarily responsible for the formation of deep-ocean basins through the subduction of tectonic plates?

- A) Isostatic rebound
- B) Tectonic convergence**
- C) Hydrothermal vent venting
- D) Turbidity current deposition

2. In chemical oceanography, what is the 'compensation depth' defined as in the context of the biological pump?

- A) The depth where net photosynthesis equals zero**
- B) The depth where calcium carbonate dissolves completely
- C) The depth where water pressure equals atmospheric pressure
- D) The depth where sunlight penetration ceases entirely

3. Which water mass is characterized by the highest density and is formed primarily in the Weddell Sea?

- A) North Atlantic Deep Water
- B) Antarctic Intermediate Water
- C) Antarctic Bottom Water**
- D) Circumpolar Deep Water

4. The Ekman spiral effect, which causes the net transport of water at 90 degrees to the wind direction, occurs in the presence of what force?

- A) Gravitational tidal force
- B) Coriolis effect**
- C) Geostrophic pressure gradient
- D) Centrifugal acceleration

5. Which of the following describes the 'Redfield Ratio,' the consistent molar ratio of elements in marine phytoplankton?

- A) 106 C : 16 N : 1 P**
- B) 100 C : 10 N : 1 P
- C) 50 C : 5 N : 1 P
- D) 120 C : 20 N : 2 P

6. In the context of coastal oceanography, what phenomenon involves the upward movement of cold, nutrient-rich water to replace surface water pushed away by winds?

A) Downwelling

B) Coastal upwelling

C) Langmuir circulation

D) Internal wave propagation

7. Which feature of the ocean floor is created by the accumulation of sediment at the base of the continental slope?

A) Abyssal plain

B) Continental rise

C) Mid-ocean ridge

D) Submarine canyon

8. The speed of sound in seawater is primarily a function of which three variables?

A) Temperature, salinity, and depth

B) Density, light penetration, and pH

C) Wind speed, humidity, and salinity

D) Chlorinity, surface tension, and turbidity