SMS-303: Integrative marine sciences, physics.

Quiz Lab 2.

1. Oceanic organisms as a whole:
   a. Can significantly contribute to mixing in the oceans.
   b. Prefer mixed water
   c. Use mixing to move faster.
   d. Do not contribute significantly to mixing except, possibly, at some places.

2. What mixes in the oceans?
   a. Heat.
   b. Momentum.
   c. Nutrients.
   d. All of the above.

3. Stirring and mixing:
   a. Are the same.
   b. Work together to erode gradients.
   c. Are sometimes the same.
   d. None of the above.

4. Which enhances mixing?
   a. Cooling water from the top.
   b. Cooling water from the bottom.
   c. Heating water from the top.
   d. None of the above.

5. Mixing of momentum (friction):
   a. Causes fluids to slow down near the boundaries.
   b. Allows the wind momentum to penetrate to depth.
   c. Causes the formation of bottom boundary layers.
   d. All the answers above.
6. Salt fingers:

a. None of the answers below.
b. Occur because heat diffuses faster than salt.
c. Occur because salt diffuses faster than heat.
d. Occur because momentum diffuses faster than heat.

7. Mixing stratified fluids:

a. Requires work.
b. Increases stratification.
c. Is easy.
d. Requires internal waves.

8. Stretching and folding:

a. Is reduced by stirring.
b. Requires momentum.
c. Increases gradients so diffusion occurs more rapidly.
d. Decreases gradients so mixing occurs more rapidly.

9. The thermocline problem refers to:

a. The fact that the density gradient at the ocean thermocline is too diffuse
given the measured mixing rates at the thermocline.
b. The fact that the density gradient at the ocean thermocline is too sharp given
the measured mixing rates at the thermocline.
c. The fact that the ocean is not stratified enough.
d. The fact that the ocean is stratified.

10. In estuaries in Maine which are likely to dominate mixing:

a. Salt fingers.
b. Tidal mixing.
c. Breaking internal waves.
d. Biological mixing.

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