Quiz Lab 1.

1. Group and phase speeds of waves:
   a. always have the same value.
   b. Can have the same value.
   c. never have the same value.
   d. None of the above.

2. Deep water waves:
   a. Are waves with small wavelengths compared to the depth of the fluid.
   b. Tsunami are deep water waves.
   c. All propagate at the same speed.
   d. Are waves of large amplitude.

3. Shallow water waves:
   a. Are waves with small wavelengths compared to the depth of the fluid.
   b. Tsunami are shallow water waves.
   c. Suffer dispersion.
   d. Are waves of large amplitude.

4. Neutrally buoyant particles in a wave:
   a. Have circular trajectory.
   b. Have smaller trajectories at depth compared to near the surface.
   c. Do not move with the speed of the wave.
   d. All of the above.

5. Refraction occurs when:
   a. The wave gets steeper.
   b. When the ratio of amplitude to wavelength is 1/7.
   c. When a wave front encounter a medium where it has a different wave speed.
   d. When a wave encounter a bluff.
6. Wave energy:
   a. Propagates with the group speed.
   b. Is proportional to the square of the amplitude.
   c. Can be both potential and kinetic.
   d. All of the above.

7. A seich:
   a. Refers to water oscillation in a basin at the natural frequency of the basin (lake, bay).
   b. Is the same for basins of variable depths but the same horizontal size.
   c. Replaces water from one side of the lake with that of the other.
   d. All of the above.

8. Doppler shift:
   a. Occurs only for sound waves.
   b. Changes the frequency of a wave to a higher frequency.
   c. Refers to a change in frequency of a wave due to the relative motion of the receiver and/or the wave source.
   d. All of the above.

9. Hull speed:
   a. Relates the speed of a boat or an animal riding on the surface of water to that of gravity waves having the same length.
   b. Explains why longer boat can go faster.
   c. Both a and b.
   d. Is a function of viscosity.

10. Resonance
    a. Is the principle whereby we use reasoning to study science.
    b. Is a concept from acoustics linking different waves.
    c. Is what happens when wind piles water on one side of a lake.
    d. Occurs when we force a system at its natural frequency.