**Simple Harmonic Motion & Mechanical Waves Conceptual Questions**

1. What feature about a pendulum makes it useful as a grandfather clock?
2. What is the period of a simple harmonic oscillator?
3. How does the velocity of a simple harmonic oscillator change as it makes an oscillation?
4. How does the acceleration of a simple harmonic oscillator change as it makes an oscillation?
5. How does the restoring force a simple harmonic oscillator experiences change as it makes an oscillation?
6. How does the law of conservation of energy apply to simple harmonic oscillators such as pendulums and mass-spring systems?
7. Distinguish between these different parts of a wave: amplitude, wavelength, frequency, and period.
8. How do frequency and period relate to each other?
9. What moves from a source to a receiver in wave motion?
10. Does the medium in which a wave moves travel along with the wave itself?
11. What is the relationship between frequency, wavelength, and wave speed?
12. In a transverse wave, in which direction do the vibrations move when compared with the direction of wave travel?
13. In a longitudinal wave, in which direction do the vibrations move when compared with the direction of wave travel?
14. How do compressions and rarefactions of longitudinal waves compare to crests and troughs of transverse waves?
15. Distinguish between constructive and destructive interference.
16. What causes a standing wave?
17. What is a node? What is an antinode?
18. In the Doppler effect, does frequency change when the source moves? Does wavelength change? Does wave speed change?
19. In which types of waves can the Doppler effect be observed?