

Name: _____

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Chapter 20 Test Practice
Conceptual Physics

Each numbered question is worth 0.5 point unless otherwise noted.

Section 20.1

1. According to the table on page 491, which noise sounds twice as loud as city traffic?
 - a. a quiet whisper
 - b. ordinary conversation
 - c. a jackhammer
 - d. the front row of a rock concert

2. Sound waves travel fastest in _____.
 - a. air
 - b. water
 - c. helium
 - d. steel

3. A car horn with a frequency of 500 Hz is trailing from a car that is moving toward a stationary person. Which of the following frequencies might be heard by the stationary person?
 - a. 600 Hz
 - b. 500 Hz
 - c. 400 Hz
 - d. 250 Hz

4. When comparing sounds, some frequencies must be played at a larger decibel level to be perceived by the human ear as equally loud. All points on the equal loudness curve on page 492 have the same perceived loudness by the human ear. According to the graph of the equal loudness curve, at which frequency is the human ear most sensitive?
 - a. 20 Hz
 - b. 200 Hz
 - c. 2,000 Hz
 - d. 20,000 Hz

Section 20.2

5. The chart on page 492 shows wavelengths of some common sounds. Which would have the highest frequency?
 - a. highest note on a piano
 - b. bass guitar
 - c. fire truck siren
 - d. average male voice

6. Sound is a _____ wave because molecules are compressed in the same direction that the wave travels.
 - a. surface
 - b. transverse
 - c. perpendicular
 - d. longitudinal

7. A person blows a whistle. The sound echoes off a wall and returns to the person after 2 s. Given that the speed of sound in air is 340 m/s, how far away is the wall? **Show your calculation to receive credit.**

- a. 170 m
- b. 340 m
- c. 680 m
- d. 1,360 m

8. Sound waves travelling through air are travelling oscillations of _____.

- a. temperature
- b. mass
- c. pressure
- d. vapor

Section 20.3

9. Hearing loss can occur due to exposure to loud noise causing _____.

- a. The tiny hairs in the cochlea to weaken or break
- b. The tiny bones of the inner ear to weaken or break
- c. the ear canal to become blocked with fluid
- d. punctures in the eardrum

10. Which of the following frequencies is not in the range of human hearing?

- a. 50 Hz
- b. 200 Hz
- c. 4,000 Hz
- d. 30,000 Hz

11. Which of the following musical notes would likely cause beats when played at the same time?

- a. 220 Hz and 440 Hz
- b. 330 Hz and 660 Hz
- c. 440 Hz and 443 Hz
- d. 132 Hz and 264 Hz

12. The note C at 264 Hz sounds different when played on a piano than when played on a guitar because of the difference in _____.

- a. pitch
- b. harmonics
- c. frequency
- d. rhythm