Quiz 2

Name: _____

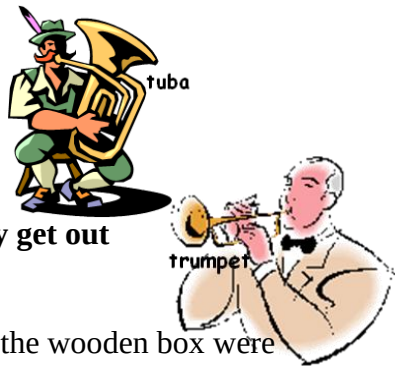
1) What makes sound?
   a) Something vibrating
   b) Sound Waves
   c) Two objects moving in the same direction
   d) Two objects moving towards one another

2) When you talk, sound travels through the air as
   a) moisture from your mouth to the listener's ear
   b) air currents from your mouth to the listener's ear
   c) dust particles from your mouth to the listener's ear
   d) waves moving through the air from your mouth to the listener's ear
   e) as particles from your mouth to the listener's ear

3) The energy of sound waves is always very small and can only be detected by our ears or other sensitive instruments.
   a) True
   b) False

4) Which of the following is NOT a cause of vibration for musical instruments
   a) plucking a string
   b) buzzing your lips
   c) pressing a key on a flute
   d) sliding a bow on a violin

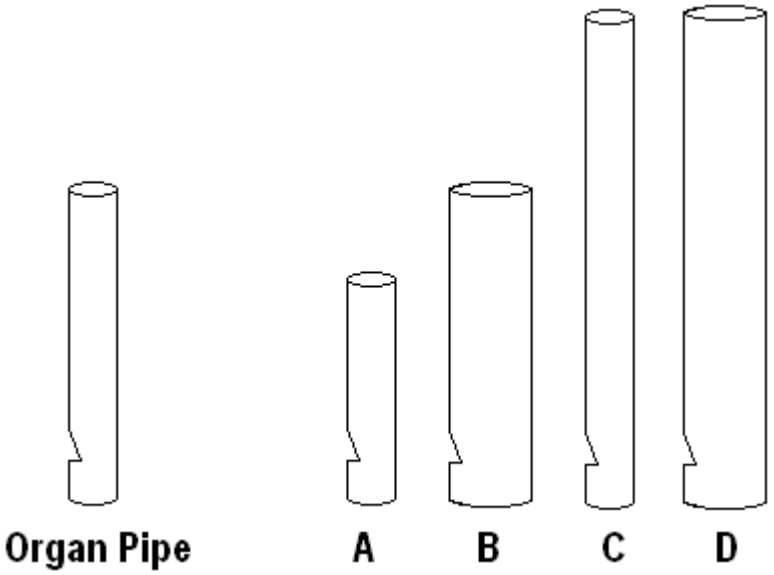
5) When an object is made to vibrate at its natural frequency of vibration we say the object is
   a) in resonance
   b) in pitch
   c) in harmony
   d) in the cochlea
   e) wavelength



6) Why does a tuba have lower sounds than a trumpet?
   a) The large bell the sound comes out of
   b) The fat tubes the sound waves move through before coming out
   c) The long distance the sound waves have to travel before they get out
   d) The way the musician blows into the tuba

7) A violin is basically a hollow wooden box with strings across it. If the wooden box were replaced by a solid piece of wood the violin would sound
   a) the same
   b) higher
   c) lower
   d) louder
   e) **quieter**.

8) The organ pipe shown in the diagram produces a certain musical pitch. Which of the other four organ pipes shown would produce the same pitch?
   a) A
   b) B
   c) C
   d) D



9) If a person blows over the top of the pipes shown in the diagram, which pipe will make a lower sound?
   a) A
   b) B
   c) C
   d) D
   e) Both C & D
   f) Both B & D
   g) Both A & C

10) Low pitch is
   a) a quiet sound
   b) a low sound (bass)
   c) a loud sound
   d) a high sound (treble)

11) The pitch of sound depends on the
   a) frequency of the sound
   b) loudness of the sound
   c) speed of the sound

12) Treble notes are high on the musical scale. The vibrations producing treble notes have
   a) low frequencies (vibrate slowly)
   b) **high frequencies (vibrate quickly**)
   c) The note does not depend on the rate of the vibrations (# per second)

13) Humans can hear sound with wavelengths that range from half an inch and to 50 feet. Bass notes are low on the musical scale and have
   a) longer wavelengths
   b) shorter wavelengths
   c) The note does not depend on the length of the wave

14) What part of the ear is used to collect and funnel sound down the ear canal?
   a) Eardrum
   b) Pinna
   c) Cochlea
   d) Ossicles

15) Hair cells in different parts of the cochlea respond to different frequencies.

Strongly agree	Agree	Don't know	Disagree	Strongly disagree
■	☐	☐	☐	☐

16) Sound waves hit the eardrum and cause it to vibrate.

Strongly agree	Agree	Don't know	Disagree	Strongly disagree
■	☐	☐	☐	☐

17) The vibrations continue through the ossicles in the middle ear and travel to the cochlea.

Strongly agree	Agree	Don't know	Disagree	Strongly disagree
■	☐	☐	☐	☐

18) Sound that is too loud can damage the tiny hair cells of the inner ear.

Strongly agree	Agree	Don't know	Disagree	Strongly disagree
■	☐	☐	☐	☐

19) The hair cells turn the vibrations into electrical signals that are sent to the brain.

Strongly agree	Agree	Don't know	Disagree	Strongly disagree
■	☐	☐	☐	☐

20) Being around loud sounds a lot will help your ears get used to it and protect your hearing.

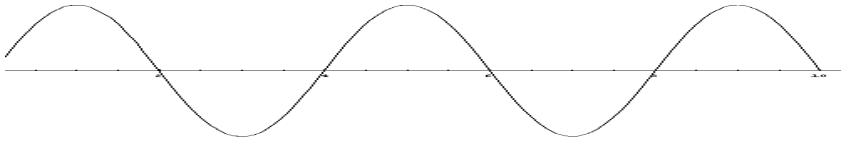
Strongly agree	Agree	Don't know	Disagree	Strongly disagree
☐	☐	☐	☐	■

21) The more time I spend around loud sound, the worse my hearing will be.

Strongly agree	Agree	Don't know	Disagree	Strongly disagree
■	☐	☐	☐	☐

22) Hair cells in the cochlea can be fixed after being damaged by loud sounds.

Strongly agree	Agree	Don't know	Disagree	Strongly disagree
☐	☐	☐	☐	■



Use **wave A**, above, for the following three questions

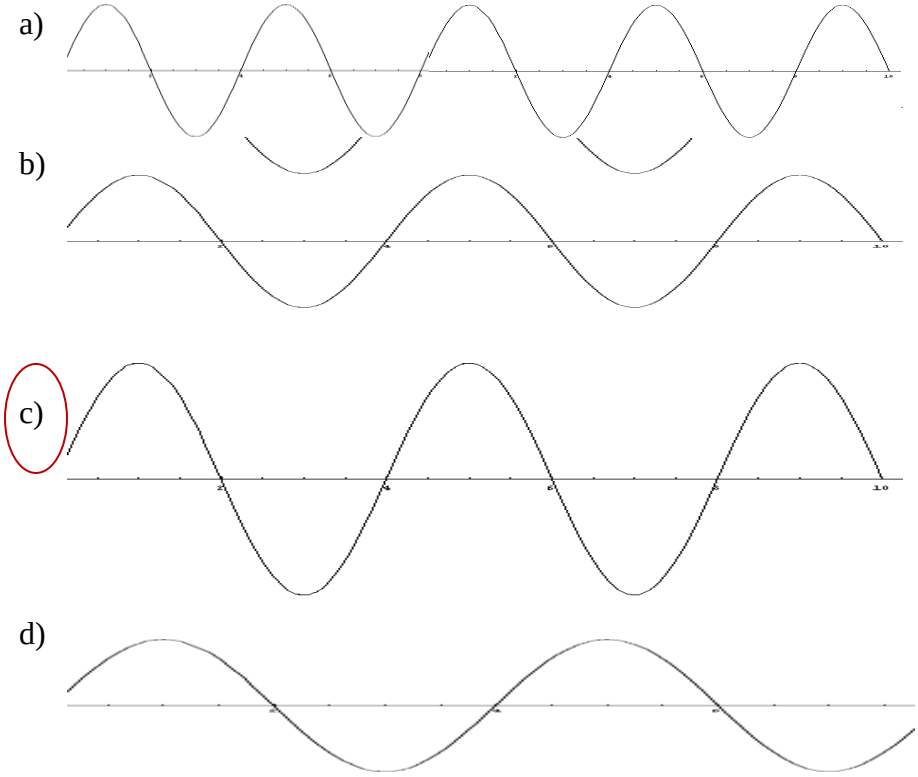
23) Which of the following waves has a larger <u>amplitude</u> than wave A above?

a)

b)

c)

d)



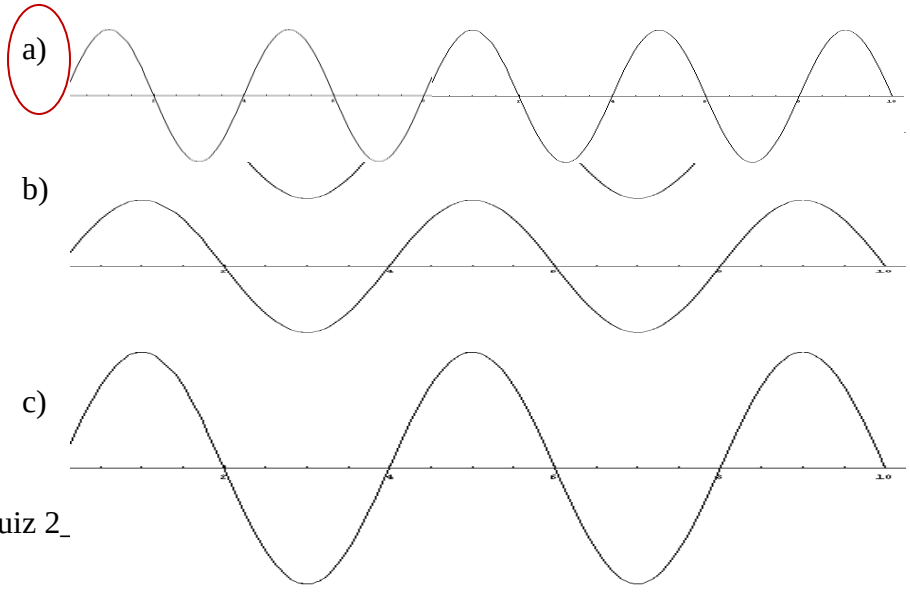
e) None of the above

24) Which of the following waves has a larger <u>frequency</u> than wave A above?

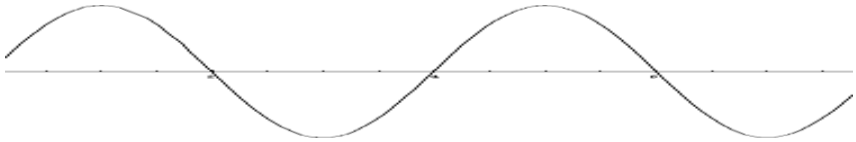
a)

b)

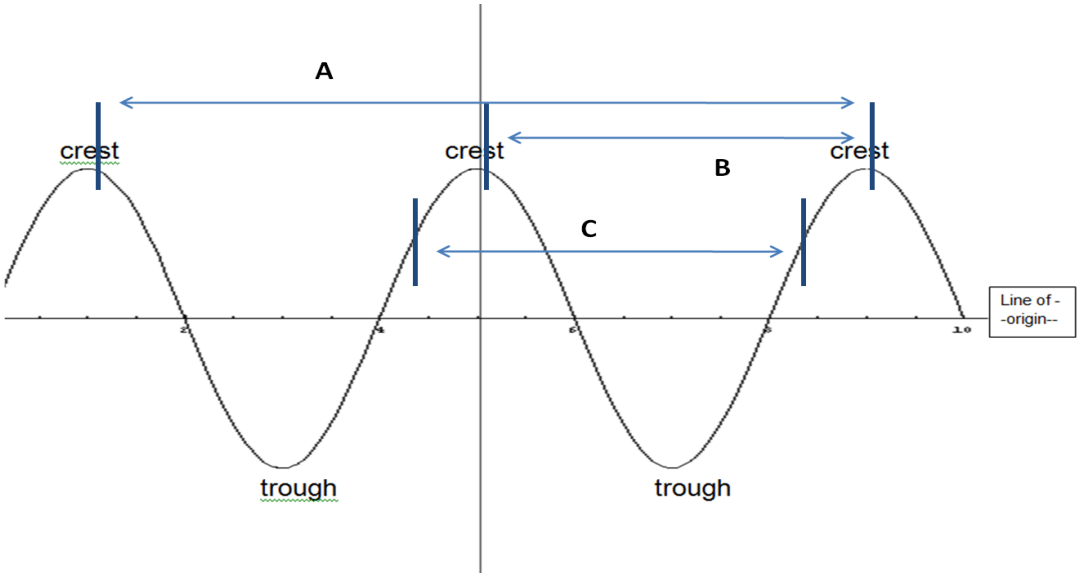
c)



d)



e) None of the above



25) Which distance, labeled above, is equal to **one** wavelength.
   a) A
   b) B
   c) C
   d) A & B
   e) B & C

26) Please describe what the general characteristics of musical instruments are. How do they make sound and change pitch and what makes them loud?

To make sound anything, including instruments needs a source of vibration such as plucking/bowing a string or blowing past a reed.

They need some way to change pitch. This involves resonance. Changing the length of a string so that it will resonate at a different note or changing the length of a woodwind to change the note that will resonate.

To be loud, lots of air has to be moved at a large amplitude. This can be done by resonance in the tube of a woodwind or by sympathetic vibration (such as the table top or guitar body).

27) Where is resonance happening with each of the following instruments?

a) Straw instrument

In the tube

b) cup instrument

On the string

c) your voice

Your vocal cords and your throat

d) acoustic guitar

On the strings

e) electric guitar

On the strings

f) piano

On the strings

28) What makes each of these instruments loud? Resonance or Sympathetic Vibration? Where and why do you think this?

a) Straw instrument

Resonance in the tube vibrates the air you can make it louder by blowing harder increasing the amplitude of the vibrations.

b) cup instrument

The cup made the string vibrations much louder no matter what length of string is plucked.

c) your voice

Resonance in your mouth and throat. You can make it louder by pushing more air out at once increasing the amplitude.

d) acoustic guitar

The body of the guitar via sympathetic vibration. The guitar is loud regardless of which note is played on the strings. Plucking a string harder makes it louder increasing the amplitude of the vibrations.

e) electric guitar

The electric guitar was not loud. It needs an electric amplifier to make it louder. The amp does not use sympathetic vibration or resonance.

f) Piano

The body of the piano produces the volume via sympathetic vibration. To make it louder, it the keys harder which hit the strings harder making a larger amplitude vibration.