Team Number _____

Team Name _____

1. In 12-tone equal temperament scale, if A4 (A above middle C) has a frequency of 440 Hz, what is the frequency of A2?

    A. 110 Hz
    B. 220 Hz
    C. 330 Hz
    D. 440 Hz
    E. 880 Hz

2. In a 12-tone equal temperament scale, if A4 (A above middle C) has a frequency of 440 Hz, what is the (approximate) frequency of E4?

    A. 220 Hz
    B. 310 Hz
    C. 660 Hz
    D. 350 Hz
    E. 330Hz

3. Which sound wave has the greatest amplitude?

    A. A tuba played at 44 Hz, 92 dB
    B. A tuba played at 88 Hz, 92 dB
    C. A piccolo played at 3000 Hz, 90 dB
    D. A piccolo played at 4000 Hz, 90 dB
    E. Your coach yelling at 500 Hz, 94 dB

4. Which sound wave sounds the loudest?

    A. A pure sinusoidal tone, 100 Hz, 60 dB
    B. A pure sinusoidal tone, 500 Hz, 60 dB
    C. A pure sinusoidal tone, 3000 Hz, 60 dB
    D. A pure sinusoidal tone, 6000 Hz, 60 dB
    E. None of the above, they all sound equally loud.

5. You see lightning flash and count 5 seconds before you hear the thunder. The strike was approximately how far away?

    A. 100 yards
    B. 500 yards
    C. 1000 yards
    D. 1 mile
    E. 10 miles

6. A 26 inch guitar string (nut to bridge) is tuned to 660 Hz. The same string is mounted on a ukulele (13 inches, nut to bridge) and tuned to the same string tension. The fundamental frequency of the ukulele string is

A. 165 Hz
B. 330 Hz
C. 660 Hz
D. 1320 Hz
E. 2640 Hz

7. A double bass's E string (36 g/m, 41 Hz) and G string (6 g/m, 98 Hz) are both in tune at a tension of 288 N. Approximately what tension is required to tune the G string to 41 Hz?

A. 8 N
B. 48 N
C. 108 N
D. 288 N
E. 688 N

8. What is the fundamental frequency (lowest note) of an 85 cm flute. Assume the speed of speed of sound is 340 m/sec. Neglect end effects.

A. 50 Hz
B. 100 Hz
C. 200 Hz
D. 400 Hz
E. 2 Hz

9. What is the fundamental frequency (lowest note) of an 85 cm clarinet? Assume the speed of sound is 340 m/sec. Neglect end effects.

A. 100 Hz
B. 50 Hz
C. 1 Hz
D. 200 Hz
E. 400 Hz

10. A tuning fork with a frequency of 440 Hz is used to tune the high string on a viola. 10 beats are heard in 5 seconds. The frequency of the viola string is:

A. 320 Hz or 560 Hz
B. 438 Hz or 442 Hz
C. 430 Hz or 450 Hz
D. 436 Hz or 444 Hz
E. 439.5 Hz or 440.5 Hz

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