Test ID: TESTID Name: _____

MAT 120 **Quiz 2** Fall 2020

1. A *harmonic tone* with fundamental frequecy 220 Hz contains all positive *number* multiples of 220 in its harmonic frequencies, where the type of *number* is:

   a) integer b) rational c) irrational d) real e) complex

   Correct Answer: integer

2. The Equal Tempered semitone is given by a frequency ratio of:

   a) $2^{\frac{1}{12}}$ b) $2^{\frac{1}{2}}$ c) $2^{\frac{1}{3}}$ d) $2^{\frac{1}{4}}$ e) $2^{\frac{1}{6}}$

   Correct Answer: $2^{\frac{1}{12}}$

3. The Equal Tempered tritone is given by a frequency ratio of:

   a) $2^{\frac{1}{12}}$ b) $2^{\frac{1}{2}}$ c) $2^{\frac{1}{3}}$ d) $2^{\frac{1}{4}}$ e) $2^{\frac{1}{6}}$

   Correct Answer: $2^{\frac{1}{2}}$

4. The interval of 4 Equal Tempered semitones is within 20 cents of the frequency ratio of:

   a) 5/3 b) 3/2 c) 4/3 d) 9/8 e) 5/4

   Correct Answer: 5/4

5. The interval of 7 Equal Tempered semitones is within 5 cents of the frequency ratio of:

   a) 5/3 b) 3/2 c) 4/3 d) 9/8 e) 5/4

   Correct Answer: 3/2

6. An interval of five equal tempered semitones is within 5 cents of which frequency ratio?

   a) 5/4 b) 4/3 c) 3/2 d) 9/8 e) 5/3

   Correct Answer: 4/3

7. An interval of 9 equal tempered semitones is within 20 cents of which frequency ratio?

   a) 5/4 b) 4/3 c) 3/2 d) 9/8 e) 5/3

   Correct Answer: 5/3

8. A frequency ratio of 5 corresponds to the interval of two octaves plus a ...?

   a) perfect fifth b) major third c) minor third d) major sixth e) perfect fourth

   Correct Answer: major third

9. 7 just major thirds corresponds to how many equal tempered semitones?

   a) 28 b) 27 c) 26 d) 25 e) 24

   Correct Answer: 27

10. Suppose a *Major* scale has seven steps, each of which can be referred to loosely as a whole step or a half step. Suppose also that each whole step has cent value w and each half step has cent value h, and that $h \neq \frac{1}{2}w$, and that the scale ends an octave higher than its starting note. Which of the following are True statements?

    i) the scale could be Equal-Tempered

    ii) the scale could be Pythagorean

    iii) the scale could be Just

    a) ii) and iii) only b) i) and ii) only c) all of them d) ii) only e) iii) only

    Correct Answer: ii) only