Vocal Acoustic Pedagogy Quiz

Name_____ HC: _____

Complete, answer, or highlight the correct option:

1. Harmonics are generated by the
   A. Vocal Folds
   B. Vocal Tract
2. The effective number and strength of source harmonics are determined by
   A. the Fundamental Frequency
   B. the Mode of Phonation
   C. Laryngeal Registration (chest, head, mix)
   D. Intensity (Loudness)
   E. All of the above
3. Formants are the _____of the vocal tract.
4. The general location of the ***overall*** set of formants is primarily determined by
   A. Tube shape
   B. Tube length
5. First formants for all vowels in adult voices occur approximately:
   A. In contact with the treble clef (D4-G5)
   B. from D3 to A4.
6. First formants of all vowels of a single voice span, from lowest to highest,
   A. About an octave
   B. About two octaves
7. Second formants for all vowels in adult voices occur:
   A. Above the treble clef, roughly between A5 and D7
   B. Roughly between B4 and D6
8. Vowels are defined by the tuning of (which formants): _____.
9. The first formant is primarily responsible for:
   A. Depth
   B. Ring
   C. Vowel Clarity

10. The first formant location is responsible for the following dimension:
    A. Openness-Closeness of the Vowel
    B. Front-Back dimension
11. The second formant is dominant for:
    A. Depth
    B. Ring
    C. Vowel Clarity
12. The second formant location is responsible for the following dimension:
    A. Openness-Closeness of the Vowel
    B. Front-Back dimension
13. Formants three and above cluster to form the _____.
14. The **singer's formant cluster** is responsible for:
    A. Depth
    B. Ring
    C. Vowel Clarity
15. and is dependent upon (indicate all that apply):
    A. forward placement
    B. an open throat and narrowed epilaryngeal exit
    C. timbral depth
16. Open vowels have a (A. low B. high) first formant.
17. Close vowels have a (A. low B. high) first formant.
18. Front vowels have a (A. low B. high) second formant.
19. Back vowels have a (A. low B. high) second formant.
20. A sound is in open timbre when:
    A. Two or more harmonics are below F_1
    B. At least the first harmonic is below F_1

21. A sound is said to close or turn over when:

    A. H2 ($2f_o$) rises above F_1

    B. H1 ($1f_o$) is in tune with F_1

22. Whenever a source harmonic passes through the first formant there is an audible effect. When a harmonic passes above F_1 the timbre (A. opens B. closes) somewhat. When a harmonic drops below F_1 the timbre (A. opens B. closes) somewhat.

23. The primary ***acoustic*** registral shift of the voice occurs when _____

    _____.

24. The primary ***laryngeal*** registral shift may correlate with the F_1:$2f_o$ acoustic shift of the

    A. open vowels /ɛ ɔ ɑ/ B. closest vowels / i u /

25. There are only two ways to raise the first formant:

    A. _____

    B. _____

26. Tube shortening is usually avoided because _____

    _____.

27. Yelling is created by:

    A. F_1 tracking of H2($2f_o$) above the normal F_1 location.

    B. F_1 tracking of H1($1f_o$) above the normal F_1 location.

28. Whoop timbre occurs when

    A. H1 ($1f_o$) rises above F_1

    B. H1 ($1f_o$) is tracked by F_1

29. When singing pitches which lie above the normal F_1 location of a vowel, a singer will need to _____

    _____ in order to preserve resonance.

30. Changing the tube shape in order to move the first two formants to find more favorable harmonic/formant relationships is traditionally called:

    A. Vowel Modification

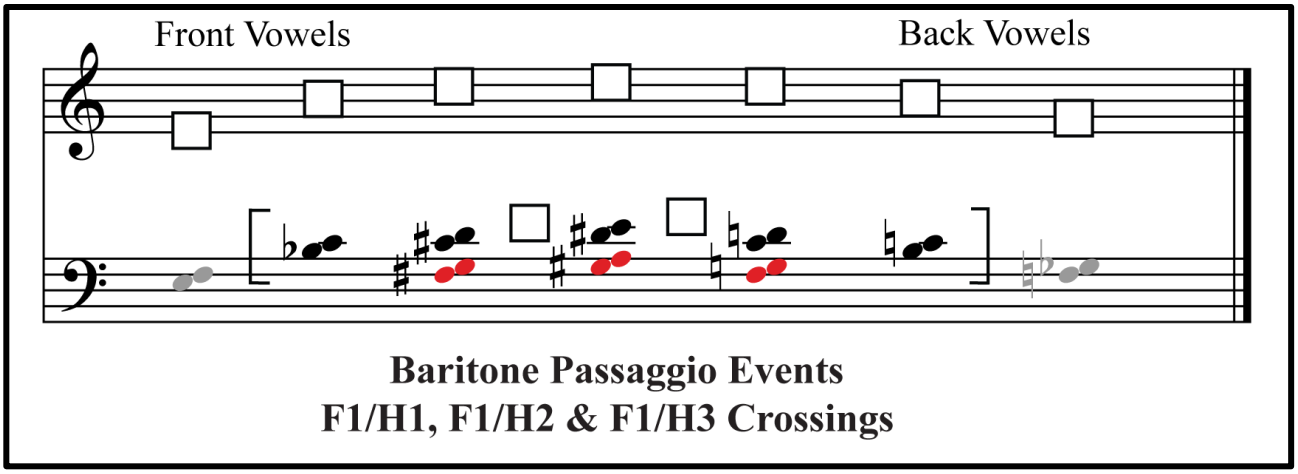
    B. Covering

    C. Bad Diction

31. *Passive* vowel modification occurs when the vocal tract length and shape are (A. kept the same B. shortened C. opened) while the pitch is raised. This vowel modification is the result of the changing interactions between stable formants and rising harmonics.

32. Some degree of passive vowel modification is inevitable when harmonics cross F_1. (True or False).

33. Place these IPA symbols--/ɑ e ɛ i o ɔ u/--in the appropriate boxes on this chart: (formant locations in boxes on treble clef; pitches of turning in bass clef)



Essay questions:

Non-treble voices:

What resonator strategy would you recommend to a male (non-countertenor) and why:

Below the pitch of turning of a vowel?

Above the pitch of turning of a vowel?

What vowels' first formants are within typical male range?

What resonator strategy would you recommend for those vowels:

If virile timbre is desired on them in the upper voice?

If a sweet affect is desired on them in the upper voice?

Treble voices (women and counter tenors):

What is a favorable vowel for establishing treble voice resonance in the middle voice and why?

Why is it a good strategy for treble voices singing in classical timbre to stay in close position on open vowels in the middle voice?

What do treble voices need to do when singing above the first formant location of a given vowel in order to maintain fullness of timbre?