COURSE MATERIALS (WRITTEN TEST)

REQUIRED
1) Introductory Ear Booklet (Al Case)
2) Test Booklets (Al Case)
3) Introduction to Audiology (with CD-ROM)
   Publisher: Allyn & Bacon; 10 edition (February 9, 2008)
   Language: English
4) Dictionary of Audiology
   Publisher: Singular; 2 edition (April 2, 2003)
   Language: English

RECOMMENDED
1) Green Book (Hearing Instrument Science & Fitting Practices)
   Publisher: National Institute for Hearing Instruments Studies; 2nd edition (1996)
   Language: English (version optional)
2) Alan Lowell tapes (recommended)

SEQUENCE OF STUDY

DRILLING
1) Read the ear booklet.
2) Word Test
3) Book 1 (Easiest Questions)
4) Otoscopic examination
5) Book 2 (Easy Questions)
6) Audiometric examination
7) Book 3 (Hard Questions)
8) Identification and Troubleshooting
9) Book 4 (Hardest Questions)
10) Impression taking
11) Begin studying the Green Book
12) Take test

CONCURRENT STUDIES
1) Watch Lowell DVDs
2) Study Audiology 101 w DVD
3) Use Audiology dictionary
   You will find this very handy
4) Study Green book
   This is the bible, but it is weighty
   and has an absolutely worthless index. Still, you are going to want to eventually get it.

Students should know that it is against the law for anybody to give them the answers to this test. Thus, the questions in the booklets have been taken from various sources, and are designed to simulate the questions on the test.

When studying the material the student should know that while there must be some memorization, the real intent here is to enable the student to think with the material.

Simply, the questions on the test are subjective, which means they are sometimes of the 'Do you still beat your wife' variety. The student must assess the answers until the answer that is most correct of the possibilities given is reached.

Once student has passed the written test Practical test drilling may begin.
HOW TO STUDY!

Have somebody ask you the questions and you provide the answers.

If you get something wrong have your partner read the red sentences.

However, the red sentences may often just tell you where to look, or something else, so you must be prepared to go look, or do whatever is recommended.

That said, often as not, you will find that you are going to have to look up words and define terms.

Remember, everything you don’t know can trip you up.

Now, you may find the method frustrating, but the point is not to make you memorize everything, but learn to analyze what is said, and to actually think with the material.

The fellows I trained who understood this had little problems with the test. The fellows who didn’t get this, who weren’t able to think with the material, but rather just tried to memorize, had problems with the test.

A few times through and you will know everything.

Remember, however, that the answers I give you are designed for a test, and they may be considered wrong in some aspect. If this appears so, think about what I have said, see if it leads to an answer that would be correct on a test, and remember the difference between test and reality.

After all, once you have finished the test, you are going to have to rethink for the practical test. And once you have finished the practical test you are going to have to rethink for the real world.

Remember, I am translating concepts and have to find the correct language to make the connection with you. That said, the mistakes I make should not be many.

And, remember, this is a field where, even though it is a science, people still argue about what things mean.

If you have disagreement with what I have said, feel free to let me know.
PART ONE
THE EASIEST QUESTIONS
Ear Test Questions

1. A properly fitted ear mold should:
   a. Hold the receiver in place
   b. Seal the ear canal in some cases
   c. Direct amplified sound towards the Tympanic Membrane
   d. Be cosmetically appealing
   e. All of the above

2. The transistor depends upon the flow of electrons through:
   a. A gas
   b. A semi-conductor
   c. A solid
   d. a and c
   e. b and c

3. Which of the following pairs correctly compares transistors to vacuum tubes:
   a. Emitter/Grid
   b. Collector/Cathode
   c. Base/Anode
   d. Semi-conductor/filament
   e. Current Amplifier/Voltage Amplifier

4. One of the following statements about volume controls is not accurate:
   a. Allows user to select a comfortable listening level
   b. Are mostly of the carbon type
   c. Has consistent taper from aid to aid
   d. Has a range of between 30 - 40 dB in an aid
   e. Is sometimes a screw set control

5. Which of the following battery cells is used most frequently today:
   a. Mercury
   b. Silver oxide
   c. Nicade
   d. Zinc oxide
   e. Zinc air
Ear Test Questions

6 The sound applied to the microphone is referred to as:
   a Output
   b MPO
   c Input
   d Saturation
   e Gain

7 The failure for a system to reproduce a wave form exactly is:
   a Frequency response
   b Distortion
   c Compression
   d Rarefaction
   e Saturation

8 The latest performance standards for hearing aids to which they are manufactured is:
   a ANSI 1987
   b HAIC 1999
   c ANSI 1984
   d ANSI 1996
   e ISO 1995

9 If a hearing aid has a gain of 40 dB and the input is 65 dB, the output will be:
   a 100 dB
   b 130 dB
   c 15 dB
   d 125 dB
   e 105 dB

10 If the maximum output of an aid is at 1000 Hz and is 130 dB, with a gain of 50 dB what was the input?
   a 60 dB
   b 50 dB
   c 70 dB
   d 90 dB
   e they are equal at 1000, 1600 and 2500 Hz
11 The component which gives the patient direct control of the amplification is:
   a Trim pot
   b program button
   c Volume control
   d Receiver
   e Potentiometer

12 The event which lead to electrical hearing aids was:
   a Transistor development
   b Vacuum tube development
   c Carbon-telephone development
   d Battery development
   e IC development

13 Your client purchased two hearing aids 6 months ago from another Hearing Aid Dis-\penser. The client is not satisfied with the hearing aids performance and does not want to return to that Dispenser. You should ____ ?
   a Encourage him to go back to the original specialist anyway
   b Return the hearing aids as soon as possible
   c Re-test and evaluate the fitting
   d Re-test and fit with other hearing aids.

14 The primary functions of the outer, middle and inner ear include…
   a Equilibrium
   b Hearing
   c Auditory processing
   d a and b
   e b and c

15 When sound consists of only one frequency it is called?
   a Noise
   b Puretone
   c Tone
   d Rarefaction

Ear Test Questions
16. The psychological correlate of frequency is...
   a. Loudness
   b. Quality
   c. Pitch
   d. Spectrum

17. The type of hearing loss caused by accumulation of wax in the ear canal is...
   a. Conductive
   b. Mixed
   c. Central
   d. Sensorineural

18. Intensity is expressed in...
   a. Decibels
   b. Cycles per second
   c. Milliseconds
   d. Milliamperes

19. Which of the following batteries is least likely to be used in hearing aids.
   a. Zinc oxide
   b. Mercury
   c. 312
   d. AA

20. Sound is least effective in traveling through...
    a. Air
    b. Water
    c. Steel
    d. Vacuum

21. A sound consisting of a single frequency and intensity is called what?
    a. Compression
    b. Rarefaction
    c. A puretone
    d. A masker
22 Standards for measurements of hearing aid characteristics are determined by what?
   a Veteran’s Administration  
   b American National Standards Institute  
   c Food and Drug Administration  
   d Federal Trade Commission

23 Pitch is to frequency as loudness is to _____?
   a Timbre  
   b Intensity  
   c Quality  
   d Tone

24 The Eustachian tube in adults is normally _____?
   a Patent (open)  
   b Horizontal  
   c Vertical  
   d Closed

25 High frequencies are normally analyzed near the _____?
   a Modiolus  
   b Helicotrema  
   c Apex of the cochlea  
   d Base of the cochlea

26 The presence of fluid in the middle ear is called_____?
   a tympanosclerosis  
   b cholestreotoma  
   c mastoiditis  
   d otitis media

27 An infection of the middle ear is called _____?
   a eczema  
   b otosclerosis  
   c serious otitis media  
   d suppurative otitis media
Ear Test Questions

28 Hearing loss due to exposure to blast noise is called _____?
   a  Temporary Threshold Shift (TTS)
   b  Permanent Threshold Shift (PTS)
   c  acoustic trauma
   d  noise induced

29 The cause for suppurative otitis media could be _____?
   a  a blocked Eustachian tube
   b  glue ear
   c  otosclerosis
   d  otitis media

30 Congenital defects are present at _____?
   a  birth
   b  age 6 months
   c  age 1 year
   d  age 2 years

31 The most common treatment for tinnitus is _____?
   a  a tinnitus masker or hearing aid
   b  biofeedback
   c  severing the 8th cranial nerve
   d  all of the above

32 A person with mild hearing impairment
   a  may have difficulty hearing faint and/or distant speech
   b  would understand conversational speech only if it were loud
   c  may show articulation problems in their speech
   d  do not rely on hearing as their primary avenue of communication

33 Subjective tinnitus
   a  is an acoustic sensation for which there is no external source
   b  is always described as ringing
   c  can be heard softly from outside the person's ear
   d  is most often treated by medication
34 The Eustachian tube in adults
   a connects the middle ear with the nasopharynx
   b serves as a ventilation tube to the middle ear
   c is normally closed
   d all of the above

35 In the cochlea, high frequencies are analyzed at the:
   a helicotrema
   b apex
   c base
   d near the middle

36 Malingering is a category of:
   a tinnitus
   b presbycusis
   c non-organic loss
   d sensorineural loss

37 The decibel expresses
   a the threshold of hearing
   b the ratio between two sound pressures
   c the pitch of a tone
   d the loudness of sound

38 If the battery drain of a hearing aid circuit is 2mA and the battery capacity is 250 mAH, what is the expected battery life?
   a 31.25 hours
   b 62.5 hours
   c 125 hours
   d 250 hours
Ear Test Questions

39 Which is true of the oval window
   a it is an opening between the middle ear and the inner ear
   b it is an opening into which the stapes footplate fits
   c is the boundary line between the middle and the inner ear
   d all of the above
   e none of the above

40 Instructions to the person being tested should be
   a unnecessary most of the time
   b carefully given and checked to see that the client understands
   c brief and to the point
   d limited only to how the client should respond

41 Sound will travel fastest through
   a air
   b wood
   c steel
   d water

42 Presence of cerumen, size and shape of the canal can be determined by
   a the shape of the earmold
   b examination of the ear with an otoscope
   c the audiometric threshold pattern
   d use of a cotton block or an otoblock

43 Little acoustic energy is lost in removing the eardrum
   True
   False

44 Before conducting audiometric tests
   a the subject’s ears should be carefully examined using an otoscope.
   b you should carefully remove impacted cerumen, if the subject so requests
   c hand the earphones to the client so that he/she can put them on in a comfortable manner
   d none of the above
The field of electronics relating to hearing aid amplification
a is only a study of wave forms
b constitutes concepts difficult for the person untrained in electronics to master
c can be mastered with a very short course of training
d is the study of transverse wave analysis

A person might benefit from a hearing aid, even though his loss is so severe that amplification will not enable him to understand speech readily because
a his hearing, though bad now, could, because of lack of exercise, become much worse
b the hearing aid will cure his deafness
c the hearing aid may enable him to perceive sound clues
d all hard of hearing persons should be fitted with a hearing aid

Frequency is related to the psychological factor of
a pitch
b compression
c loudness
d duration

The normal intact tympanic membrane is pink to bright red in color
True
False

As a sound wave travels it consists at time of molecules that are closer together. This part of the wave is called
a decibel
b frequency
c compression
d rarefaction

A sensorineural hearing loss is a disorder in the
a Eustachian tube
b middle ear
c inner ear
d ossicles
Ear Test Questions

51  A hearing aid
   a  improves your hearing
   b  improves your signal to noise ratio
   c  amplifies sound
   d  is an absolute necessity for those people who can’t learn how to read lips.

52  If a sound consists of more than one frequency without a pattern, it is called a
   a  sine wave
   b  noise
   c  reverberation
   d  transverse wave

53  A hearing aid can be described as
   a  an all-in-the-ear instrument
   b  an ear trumpet
   c  a body worn instrument
   d  any of the above

54  Determining minimum intensity levels at which the individual responds to selected frequencies is accomplished with the
   a  tympanometer
   b  tuning fork
   c  audiometer
   d  probe microphone

55  The cause, cure and treatment of tinnitus
   a  have been well understood for the last 25 years
   b  have been understood for the last 10 years
   c  are of little importance to the hearing aid specialist
   d  are not well understood
56. If sound consists of only one frequency, it is called a
   a) reverberation
   b) noise
   c) pure tone
   d) complex sound

57. Probably the most common cause of otitis media is
   a) sinus infection
   b) a cold
   c) allergy
   d) measles

58. When the impression material is removed from the mixing bowl, the packing of the ear should be completed within
   a) 30 seconds
   b) 45 seconds
   c) 60 seconds
   d) 90 seconds

59. Intensity and frequency can be measured by electrical instruments
   True
   False

60. The human ear
   a) is associated with equilibrium
   b) has most of its important mechanism hidden deep within the skull
   c) helps us tell which direction we are moving in
   d) a, b, and c

61. An empathic understanding of the client’s personality, experience, problems and expectations is important in the hearing instrument fitting process.
   True
   False
Ear Test Questions

62 Frequency and pitch
   a are two completely different things, having no relationship to each other
   b are identical
   c are not the same, but one is related to the other
   d are related on an absolute one-to-one basis
   e are the same as intensity and loudness

63 At the time of delivery of the instrument(s) you should make sure that
   a the earmold is comfortable and properly fitted
   b you review important information said at the first contact
   c the client understands how to control the volume, and change batteries
   d all of the above

64 Noises in the head such as roaring, hissing, buzzing, ringing, etc., are
   a recruitment
   b trauma
   c tinnitus
   d harmonics

65 Another name for the pinna is
   a external ear
   b lobule
   c tragus
   d auricle
   e none of the above

66 Perforations in the tympanic membrane are of little importance to the hearing instrument specialist
   True
   False
Ear Test Questions

67 The outer rim of the auricle is the
a pinna
b tragus
c helix
d concha

68 A hearing aid dispenser needs to know about hearing disorders
a to add to his knowledge about how the hearing mechanism works
b to allow him to know when to send his client to a physician
c to help him understand the medical problems of his clients
d to enable him to tell his clients what caused their problems
e a, b, and c,
f a, b, c, and d

69 A dividing line between the external ear and the middle ear is the
a Eustachian tube
b malleus
c tympanic membrane
d oval window

70 A complete removal of the stapes is
a a mastoidectomy
b a nerve deafness
c a stapes mobilization
d a stapedectomy

71 The color of the healthy eardrum is
a pink
b red
c pearly grey
d light amber

72 Using a battery of overlapping tests rather than one test is desirable because
a it gives the client more experience at responding
b it greatly improves diagnostic capabilities
c it means more income for the office
d all of the above
73  The eardrum
   a  is also called the tympanic membrane
   b  is extremely strong
   c  is usually thinner and more elastic in children than in adults
   d  all of the above
   e  none of the above

74  Which instrument produces a pure tone?
   a  clarinet
   b  violin
   c  audiometer
   d  church bell
   e  human voice
PART TWO
THE EASY QUESTIONS
75 The hole extending through the canal to the tubing connection or the receiver nub is the:
   a  Bridge
   b  Helix
   c  Sound bore
   d  Vent
   e  Flare

76 Resistance to the transmission of sound is greatest for which frequencies?
   a  High
   b  Low
   c  Medium
   d  All
   e  No

77 Smaller diameter sound bore tubing has the effect of:
   a  Decreasing gain and output
   b  Increasing gain and output
   c  Assisting high frequency response
   d  Reducing high frequency response
   e  Both a and b

78 Modification of the hearing aid response can be provided by:
   a  Tone controls
   b  Tubing size
   c  Earmold modification
   d  Receiver inserts
   e  All of the above

79 That which is often thought of as an input transducer in reverse is the:
   a  Vacuum tube
   b  Receiver
   c  Diaphragm
   d  Electret microphone
   e  Transistor
Transistors, resistors, capacitors and switches comprise the:

a. Amplifier  
b. Microphone  
c. Receiver  
d. Battery  
e. Cell

The part of the hearing aid which converts the electrical signal to an acoustical or vibratory output is the:

a. Microphone  
b. Output transducer  
c. Oscillator  
d. Tone potentiometer  
e. Amplifier

The function of an amplifier is to:

a. Convert acoustical to electrical energy  
b. Convert electrical to acoustical energy  
c. Increase the amplitude of the signal picked up by the microphone  
d. Limit the MPO of the hearing aid  
e. Act as the power supply of the hearing aid

Which component takes energy from a transducer by means of an induction pickup?

a. Microphone  
b. Receiver  
c. Bone-conduction vibrator  
d. Amplifier  
e. Telephone coil

The level dependent frequency response ASP showing bass increasing at low levels is:

a. TILL  
b. BILL  
c. PILL  
d. LDFR  
e. Not enough information
Ear Test Questions

85. A condition in which a 5 dB gain occurs in the output of a hearing aid with an input of 10 dB is:
   a. Corrosion
   b. A dead aid
   c. Compression
   d. Distortion
   e. Feedback

86. Another name for saturation is:
   a. Compression
   b. Overload
   c. Out of bounds
   d. Feedback
   e. Distortion

87. The highest SPL to which an aid can be driven under any combinations of acoustic input and gain can be read as:
   a. MPO
   b. HFA SSPL 90
   c. Peak output
   d. Saturation
   e. All of the above

88. The hearing aid battery specially designed for recharging is:
   a. Silver-oxide
   b. Nickel-cadmium
   c. Alkaline
   d. Mercury
   e. Zinc-air

89. The lag following a decrease in the amplitude of the input signal in compression aids is called:
   a. Attack time
   b. Overshoot
   c. Output limiting
   d. Recovery time
   e. Symmetrical peak clipping
90 A hearing threshold of 40 dB means:
   a  40 dB SPL
   b  40 dB re: ANSI '89 reference thresholds
   c  40 dB HL
   d  40 dB or above the persons threshold
   e  b and c

91 Sensation level refers to:
   a  The level at which an individual can just detect sound
   b  The average hearing curve
   c  Hearing threshold re: 0.0002 dynes/cm2
   d  The threshold value above average normal hearing
   e  A sound presented relative to the individual’s threshold

92 Localization in binaural hearing depends on:
   a  Loudness squelch
   b  Signal strength reaching the two ears
   c  Loudness summation
   d  Arrival time of signal at the two ears
   e  b and d

93 The reduction of the intensity of the sound as it passes from one side of the head to the other is:
   a  Masking
   b  Loudness squelch
   c  Interaural attenuation
   d  Venting
   e  Summation effect

94 The major parts of the peripheral hearing system include the...
   a  Outer ear
   b  Middle ear
   c  Inner ear
   d  Brainstem
   e  a, b, and c
Ear Test Questions

95. A similar term for balance system is...
   a. Retrocochlear
   b. Ossicular chain
   c. Vestibular system
   d. Horizontal, lateral, and utricular canals

96. The human ear can respond to approximately what frequency range?
   a. 500 - 3000 Hz
   b. 1 - 24000 Hz
   c. 25 - 25000 Hz
   d. 20 - 20000 Hz

97. The type of hearing loss usually associated with presbycusis is...
   a. Conductive
   b. Mixed
   c. Sensorineural
   d. Psychogenic

98. The usual technique for pure tone testing is...
   a. Ascending
   b. Descending
   c. Off-on-off tone
   d. Ascending/descending

9. It is standard procedure to begin testing at...
   a. 2000 Hz
   b. 1500 Hz
   c. 1000 Hz
   d. 500 Hz

100. The type of word used in establishing SRT is...
    a. Phonetically balanced
    b. Spondaic
    c. Synonymic
    d. Anatomical
Ear Test Questions

101. An advantage of digital hearing aids is...
   a. Ability to differentiate background noise
   b. Ability to differentiate between speech and noise
   c. Ability to increase signal to noise ratio
   d. Longer battery life

102. How many octaves are there between 250 and 8000Hz?
   a. 2
   b. 3
   c. 3
   d. 4
   e. 5

103. Another term for maximum output limitation of a hearing aid is what?
   a. Maximum gain
   b. Reference test gain
   c. OSPL 90
   d. Frequency response

104. The ‘normal’ intensity of a speaker’s voice at a distance of one meter is likely to be _____?
   a. 65-70 dB SPL
   b. 65-70 dB HTL
   c. 45-50 dB SPL
   d. 20 dB SPL

105. It is common procedure to begin testing _____?
   a. The poorer ear first
   b. Both ears together
   c. The better ear first
   d. In the ear the client uses the telephone with

106. Your client has an SRT of 45 dB, an MCL of 65 dB, and a UCL of 100 dB. Your DR is _____?
   a. 20 dB
   b. 35 dB
   c. 55 dB
   d. not enough information
Ear Test Questions

107 What type of hearing loss results in the person speaking in a louder than normal voice?
   a conductive
   b sensorineural
   c mixed
   d central

108 The type of hearing loss which results in a person speaking in a softer than normal speaking voice is called what?
   a conductive
   b sensorineural
   c mixed
   d central

109 Changes in the spiral ganglia and hair cells are quite marked in
   a conductive losses
   b psychogenic losses
   c sensorineural losses
   d functional losses

110 An increased reflection of sound on the tympanic membrane can be the result of _____?
   a a middle ear infection
   b a head injury
   c tinnitus
   d none of the above

111 A small hole in the tympanic membrane can cause a loss of ____?
   a 0 dB HTL
   b 10-15 dB HTL
   c 20-25 dB HTL
   d 30-35 dB HTL

112 A blocking of or closure of the ear canal is called ____?
   a ataxia
   b atresia
   c aphasia
   d stenosis
113  The procedure of replacing the stapes with an artificial prosthesis is called _____?
   a  myringotomy  
   b  stapedectomy  
   c  tympanoplasty  
   d  fenestration

114  Hearing loss from noise exposure is usually due to
   a  obstruction of the external canal  
   b  cochlear hair cell damage  
   c  overproduction of endolymph  
   d  labyrinthitis

115  Earmold tubing comes in several inside diameters. The size most often recommended by manufacturers is:
   a  #16  
   b  #15  
   c  #14  
   d  #13

116  If a person has UCL of 90 dB and an SRT of 45 dB, the dynamic range is
   a  90 dB  
   b  45 dB  
   c  135 dB  
   d  cannot be computed from the information given

117  Which of the following is part of the inner ear?
   a  vestibule  
   b  endolymph  
   c  tectorial membrane  
   d  all of the above  
   e  none of the above

118  A person with a dynamic range of 50 dB and a TD of 100 dBHL would probably
   a  have no trouble listening to a phonograph record  
   b  be uncomfortable with a live orchestra playing the same music  
   c  have difficulty with quiet conversation  
   d  all of the above
The ossicles form a link between
a  the concha and the round window
b  the tympanic membrane and the scala tympani
c  the cochlea and the middle ear
d  the tympanic membrane and the oval window

Decibels
a  can be added together
b  are based on a logarithmic scale
c  all of the above
d  none of the above

A spondee is a two syllable word with
a  equal stress on both syllables
b  more stress on the first syllable
c  more stress on the last syllable
d  none of the above

The electronic resistance of a wire is inversely proportional to its length
True
False

Why can body aids provide more amplification than behind the ear aids?

a  battery is larger
b  can use tubes instead of transistors
c  microphone is larger
d  it’s located at the chest so loud sounds won’t hurt the ear
e  microphone is more distant from the receiver

Where are the low frequencies analyzed in the cochlea?
a  apex
b  near the middle
c  near the oval window
d  base
e  all of the above
Ear Test Questions

125 What is true of the external auditory canal?
   a the outer \(\frac{2}{3}\) is skin over bone
   b the inner \(\frac{1}{3}\) is skin over cartilage
   c it is usually straight
   d it has hair cells
   e none of the above

126 Which of the following is part of the helix?
   a scaphoid fossa
   b scala vestibuli
   c intertragial notch
   d a, b, and c
   e a and c only

127 Any disarticulation between the incus and the stapes will cause
   a a malfunction of the semicircular canals which in turn cause a feeling of dizziness
   b a decrease in the passage of high frequency sounds
   c a decrease in the passage of both high frequency and low frequency sounds
   d a decrease in the passage of low frequency sounds

128 Sound waves travel in expanding circles on the surface
   a True
   b False

129 The transistor is a solid state device which acts like a variable resistor and is controlled by the input current
   True
   False

130 A descending test technique is commonly used in hearing instrument testing because
   a it is the easiest to explain to the client
   b it is the easiest for the client to hear
   c it can prevent hearing fatigue
   d all of the above
131 In bone conduction, which parts of the ear are involved?
   a  the external and middle ear only
   b  the external and inner ear only
   c  the middle and inner ear only
   d  the exterior, middle and inner ear
   e  the inner ear only

132 The volume of gain control of a hearing aid regulates the amount of the input?
   True
   False

133 The tympanic cavity
   a  is normally a fluid filled cavity
   b  contains three tiny bones called the Malleus, Hammer, and Stapes
   c  contains two muscles: the stapedius and the tympanic tensoid muscles
   d  b and c only
   e  a and c only

134 The decibel is a ratio between two intensities?
   True
   False

135 In bone conduction testing the vibrator should be
   a  placed so that it contacts the pinna as well as the mastoid
   b  held in place by the person being tested
   c  held in place by a headband that exerts exactly one pound of pressure
   d  placed at the most sensitive position in the mastoid area

136 Intensity is
   a  the same as loudness
   b  related to the amplitude of a sound wave
   c  related to the maximum sound pressure developed
   d  a, b, and c
   e  b and c only
Examples of phonetically balanced words are HOTDOG and FOOTBALL
True
False

Loudness is
a related to the effective sound pressure
b related to the 'sone'
c an auditory sensation
d all of the above
e none of the above

The standard unit of measurement for frequency is
a octaves
b pure tones
c complex tones
d cycles per second
e harmonics

The function of a microphone is to
a amplify the acoustic signals
b pick up electro-magnetic signals
c convert electrical energy to acoustic energy
d convert acoustic energy to electrical energy

The average adult’s external auditory canal is approximately what size?
a 2 inches long and ½ inch in diameter
b 1 to 1½ inches long and ½ inch in diameter
c 1½ inches to 2 inches long and ¼ inch in diameter
d 1 to 1½ inches long and ¼ inch in diameter
e none of the above

An early surgical procedure made a tiny window or opening in a semi-circular canal so sound would bypass the oval window, which was called
a an atresia
b a fenestration
c a stapedectomy
d chronic otitis media
Ear Test Questions

143 A case history is obtained prior to testing in order to
   a impress the client with a feeling of confidence
   b determine which tests are necessary
   c determine which ear will be best to enhance
   d all of the above

144 The length of the human cochlea from base to apex is about
   a 1 inch
   b 1 ¾ inches
   c 5 mm
   d 10 cm

145 Which of the following is a term for closure of the external auditory canal?
   a otosclerosis
   b atresia
   c otitis
   d stenosis
   e none of the above
PART THREE
THE HARD QUESTIONS
A complaint of speech sounding as if it were listening 'inside a barrel' can be corrected by:

a. Lengthening the canal to achieve full boney contact  
b. Using smaller diameter tubing  
c. Using larger diameter tubing  
d. Venting the ear mold for a larger vent  
e. a and d

A larger earmold bore transmits ______ frequencies more effectively:

a. Lows  
b. Highs  
c. Medium  
d. All  
e. no

A tubing type earmold consisting of the canal portion only is the:

a. Skeleton  
b. Half-Shell  
c. Shell  
d. Canal-Lock  
e. Canal

To vent an earmold for pressure relief purposes only:

a. Provide a large  
b. Provide two vents  
c. Provide a parallel vent  
d. Provide as small a vent as possible  
e. A vent will not provide relief

The tubing type earmold consisting of a tube into the ear canal and with the tubing held by a retained ring only is:

a. Non-occluding  
b. Half-Shell  
c. Canal Lock  
d. Skeleton  
e. Receiver
Ear Test Questions

151 The condition in which the intensity of the sound is reduced because of the head positioned between the ears is:
   a  Masking
   b  Attenuation
   c  Head shadow effect
   d  Directional hearing
   e  Summation

152 Directional microphones depend on which feature(s) to create their effect:
   a  Increases desired signals
   b  Intensity and time of arrival differences
   c  Phase differences
   d  Intensity differences
   e  Amplitude differences

153 One of the following statements about directional microphones hearing aids is not true:
   a  Most signal amplification is from the front
   b  S/N ratio is improved because of the noise suppression from the back
   c  Front-back localization occurs
   d  Discrimination is improved in quiet
   e  Increased effective hearing directly in front

154 When a 45 degree line indicates a constant gain to the saturation of a hearing aid it is called:
   a  Curvilinear amplification
   b  Logarithmic amplification
   c  Non-linear amplification
   d  Peak limiting amplification
   e  Linear amplification

155 The maximum SPL the hearing aid can produce with a given gain, regardless of input is:
   a  dB output
   b  Acoustic gain
   c  S/N ratio
   d  SSPL/OSPL
   e  Distortion
Ear Test Questions

156  High frequency average gain is obtained by averaging the frequencies of _____ Hz:
    a  1000, 2000 and 4000
    b  100, 200 and 300
    c  500 and 1000
    d  500, 1000, 2000
    e  1000, 1600, 2500

157  The HFA gain of a hearing aid with gain values of 20, 40 and 50 dB at 1000, 1600 and 2500 Hz respectively is:
    a  40 dB
    b  Almost 37 dB
    c  110 dB
    d  45 dB
    e  Too much information

158  The best type of amplitude output limiting is:
    a  Peak clipping
    b  AGC
    c  Compression amplification
    d  ASP
    e  None sufficiently demonstrates to have overall advantage

159  The performance of the capacitor in a hearing aid is to:
    a  Pass the highs and to pass the lows
    b  Block both highs and lows
    c  Act as a resistor to cut the SSPL 90
    d  Pass the highs and block the lows
    e  Pass mid frequencies only

160  The directional microphone differs from the conventional omni-directional microphone in which way:
    a  It allows for a time of arrival (phase) difference
    b  It allows for an intensity difference between the signal F/B openings
    c  It has two openings for a microphone instead of one
    d  It passes signals from the front with greatest efficiency
    e  All of the above
The measurement which provides information about the OSPL to which the aid should be limited for a given individual is the:

a. TD (Threshold of Discomfort)
b. MCL
c. SPL 90
d. SRT
e. DR

Dynamic Range is:

a. The level of maximum discomfort
b. The MPO of the hearing aid
c. The volume control range of the hearing aid
d. TD - SRT
e. SRT - MCL

If the MCL is only slightly above the SRT, this may indicate:

a. Loudness discomfort problems should be anticipated
b. Considerable gain can be realized
c. It will be difficult to get enough gain from the aid to make speech audible:
d. MPO can be high
e. A large dynamic range
Use the following audiogram for the next two questions.

Speech scores are SRT, left = 10 dB.
SRT, right = 15 dB.
The loss is sensorineural BC = AC.
Word recognition is 100% in the left ear and 56% in the right ear.
Binaural word recognition is 60%.

164 What additional test/s would be most helpful for the HIS (Hearing Instrument Specialist) to perform?

1 Speech MCL
2 Discrete frequency LDL
3 Tone decay
4 Speech rollover for PI-PB max

a 1 and 2 are correct
b 3 and 4 are correct
c 1, 2, 3 and 4 are correct
d 2 is correct
165  The term that best describes the binaural word recognition score is _____ ?
    a  Binaural localization
    b  Binaural squelch
    c  Binaural degradation
    d  The head shadow effect

Use the following audiogram for questions #166 - 170. These partial results are given. This client presents with the following symptoms: She has noticed a recent change in her hearing in the right ear. There is fullness in that ear with extreme tinnitus.

166  If the diagnosis was for Meniere’s disease, the most frequent additional symptom is likely _____ ?
    a  Vertigo
    b  Monomeric spots
    c  Acoustic Neuroma
    d  Tympanosclerosis

167  Word recognition is likely _____ ?
    a  Good in both ears
    b  Poor in both ears
    c  Good in the left and poor in the right
    d  Good in the right and poor in the left.
168 The tympanogram for the right ear is likely _____ ?
   a Type A
   b Type B
   c Type C
   d Unlikely to obtain

169 The terms that best describe this loss are _____ ?
   a Bilateral, symmetrical, sensorineural
   b Unilateral, symmetrical, mixed
   c Unilateral, asymmetrical, sensorineural
   d Unilateral, asymmetrical, mixed

170 The numbers used in the calculation of the PTA are _____ ?
   a 1000, 1600, and 2500 Hz
   b 500, 800, and 1600 Hz
   c 500, 1000, and 2000 Hz
   d 1000, 2000, and 4000 Hz

171 Pure tone scores are as follows, in both ears.
   500 Hz = 20 dB
   1000 Hz = 50 dB
   1500 Hz = 55 dB
   2000 Hz = 70 dB
   4000 Hz = 75 dB
   The PTA is closest to _____ ?
   a 35 dB
   b 42 dB
   c 47 dB
   d 52 dB

172 The type of tympanogram that has no identifiable peak is the _____ ?
   a Type A
   b Type B
   c Type C
   d Type Ad
You would expect which diagnosis to produce a Type A tympanogram?

1. Normal hearing
2. Presbycusis
3. Noise induced hearing loss
4. Otitis media

a. 2 and 3 are correct
b. 1, 2, and 3 are correct
c. 1, 2, 3, and 4 are correct
d. only 2 is correct

You would expect which of the following to produce a Type B tympanogram?

1. Normal hearing
2. Otitis media
3. Tympanic Membrane perforation
4. Eustachian tube dysfunction

a. 1 and 2 are correct
b. 2 and 3 are correct
c. Only 1 is correct
Your client is a 78 year old woman who has never worn hearing aids before. She lives at home, but has limited mobility and uses a walker. She has daily visits from home health nursing services. She has very poor eyesight and feeling in her hands. She used to enjoy knitting sweaters for her grandchildren, but can no longer do so. She is under doctor’s care for diabetes, rheumatoid arthritis, and other health problems. The loss is sensorineural (BC = AC).

Use the above audiogram to answer questions 102 - 106.

175 The least likely cause of this hearing loss is…
   a Meniere’s disease
   b Presbycusis
   c Noise exposure
   d Ototoxicity

176 The most likely hearing aid style selection is…
   a BTE with a skeleton earmold
   b ITE with an IROS vent
   c Canal with no vent
   d BTE with a full shell earmold
Two weeks after delivery, she complains of a whistling noise, and the earmolds are difficult to insert and making her ears sore. You should first…

- Shoot new impressions and compare to existing earmolds
- Identify the sore spots and reduce in those areas
- Have her demonstrate how she is inserting the earmolds and re-instruct, if needed
- Have her stop wearing the hearing aids for an indefinite period

The degree of hearing loss in this audiogram is…

- Unknown
- Moderately - severe
- Profound
- Sensorineural

Which of following areas will be more challenging for the user…

1. One on one lecture with her adult son
2. A lecturer presenting at a lecture hall
3. Dinner conversation with multiple guests
4. Television volume

- 1 and 2 are correct
- 1 and 3 are correct
- 1, 2, and 3 are correct
- 2 and 3 are correct

For this client, you are most likely to be initially concerned about counseling for…

- Encouraging acceptance of hearing aids
- Ability to insert batteries and earmolds
- Wearing schedule
- Proper expectations
Ear Test Questions

181. Eight words are missed on a complete list of PB words. the score is…
   a. 84%
   b. 92%
   c. 64%
   d. 32%

182. Doubling sound pressure does what?
   a. Increases decibels by 10
   b. Increase 6
   c. Increases decibels by 2
   d. Does not significantly affect decibels

183. An abnormal sensation to loudness growth is associated with the term _____?
   a. Tinnitus
   b. Presbycusis
   c. Meniere’s disease
   d. Recruitment

184. An adaptive directional microphone hearing aid _____?
   a. Changes from omni to directional mode
   b. Changes the polar pattern according to the noise source
   c. Has been shown to be more effective than a fixed directional microphone for speech understanding
   d. Is not affected by reverberant noise

185. A BILL processing strategy _____?
   a. Restricts low frequencies as intensity levels increase
   b. Restricts high frequencies as intensity levels increase
   c. Restricts low frequencies as intensity levels decrease
   d. Is prevalent in linear hearing aids

186. Recruitment is best defined as
   a. a small increase in sound intensity resulting from rapid increase in apparent loudness
   b. a high frequency ringing or buzzing noise
   c. an hallucination of movement, arising from problems within the vestibular system
   d. a change in the stiffness or compliance of the basilar membrane, or fixation of the stapes
187  Loudness recruitment may be caused by
    a  damage to the outer hair cells
    b  loud noise exposure
    c  ototoxic medications
    d  all of the above

188  The symptoms of otitis interna parallel those of _____?
    a  non-suppurative otitis media
    b  suppurative otitis media
    c  myringitis
    d  Meniere’s syndrome

189  Otosclerosis of the cochlea is a _____ occurrence in the elderly population.
    a  common
    b  somewhat common
    c  relatively rare
    d  rare

190  Tympanoplasty is the
    a  lansing of the eardrum
    b  repair of the a perforated eardrum
    c  removal of a cholesteatoma near the eardrum
    d  placement of a PE tube in the eardrum

191  Otosclerosis primarily affects
    a  membranous tissue
    b  bony tissue
    c  fibrous tissue
    d  mucous tissue

192  Otosclerosis is not predominately found in
    a  Caucasian women
    b  families
    c  the elderly population
    d  pregnancy
193 In a mixed hearing loss
   a  air conduction scores are normal, bone is reduced
   b  air and bone are both reduced approximately the same
   c  air and bone are both reduced, but there is an air-bone gap
   d  bone scores are normal, but air is reduced
   e  none of the above

194 The Pure Tone Average is obtained by
   a  averaging the response at 0.5, 1 and 2 kHz
   b  averaging the response at all frequencies tested
   c  using the same formula as for obtaining the DR
   d  none of the above

195 A cholesteatoma is
   a  an infection of the inner ear that can cause otitis interna
   b  a tumor that can be found in the middle ear
   c  a condition of the ear canal that may result in poor earmold fit
   d  none of the above

196 Sound pressure is measured in dynes/cm2.
   True
   False

197 Essentially, a capacitor passes high frequencies and blocks low frequencies.
   True
   False

198 At what Sound Pressure Level, for normal ears, does sound become painful?
   a  110 dB SPL
   b  140 dB SPL
   c  1000 dynes/cm sq.
   d  10-16 watts/sq. cm.
199 What does the term 67 dB mean?
   a  half of the total range of intensities (0-134)
   b  67 dB of acoustic power
   c  sound pressure level of 67 dB
   d  means nothing since no standard reference is given
   e  67 dB for a 1000Hz tone

200 The harmonic just above 200 Hz would be
   a  300 Hz
   b  400 Hz
   c  500 Hz
   d  600 Hz
   e  800 Hz

201 An average hearing loss is generally considered in reference to
   a  bone conduction testing
   b  PB word lists
   c  air conduction testing
   d  a combination of all three

202 The quality or timbre of a sound is a property that depends on
   a  the harmonics
   b  the overtones
   c  the strength of frequencies in a complex sound
   d  the strength of each frequency in a sound
   e  all of the above

203 A person complains of a plugged up feeling from his earmold. What can you do to help?
   a  enlarge the sound bore
   b  alternate aid between ears
   c  recommend a bone conduction aid
   d  use filters
   e  vent the mold
The amount of electricity flowing from a battery through the circuit is called the
a milliamperes
b milliwatts
c resistance
d current

The middle ear may be considered a transformer because it causes an increase in sound pressure
True
False

Excessive ambient noises produce problems for low frequency test signal more than high frequency signals
True
False

Even though integrated circuits use more power, their smaller size give them a great advantage over vacuum tubes
True
False

The acoustic reflex threshold for normal hearing individuals generally occurs below the uncomfortable listening level
True
False

The pure tone average is useful information as part of the audiological evaluation process
True
False
210 Which of the following would be overtones if the fundamental frequency was 500 Hz?
   a  600 Hz
   b  1000 Hz
   c  1500 Hz
   d  b and c
   e  a, b and c

211 Master hearing aid units incorporate the adjustment of gain, slope, AGC, MPO and a recording unit to print the results
   True
   False

212 Otosclerosis occurs
   a  more often in women than men
   b  more often in caucasians than other races
   c  as an inherited tendency
   d  all of the above

213 The most commonly used microphone in hearing aids today is
   a  crystal microphone
   b  electret microphone
   c  magnetic microphone
   d  ceramic microphone

214 The three parts of a transistor are
   a  microphone, amplifier and receiver
   b  emitter, collector and base
   c  diaphragm, pole piece and magnet
   d  magnet, piezo-electric and ceramic

215 The Speech Discrimination score (SDS) serves the purpose of
   a  indicating how the client functions without amplification
   b  obtaining the client’s PB max
   c  indicating how the client functions with amplification
   d  all of the above
The reflex action which may protect the ear from excessive acoustic stimulation is dependent on the proper function of the

- round window membrane
- Eustachian tube
- stapedius muscle
- none of the above

The decibel

- is an absolute measure of sound intensity
- in an absolute measure of sound loudness
- should never be qualified as a reference to a standard
- is used only as a measure of hearing loss
- none of the above

What type of accessory or modification for a basic hearing aid might assist the wearer in attending to a speaker in a noisy environment?

- directional microphone
- external receiver
- plugging the vent in the earmold
- variable gain control
PART FOUR
THE HARDEST QUESTIONS
Ear Test Questions

219  Which of the following is not considered to result from the successful use of open canal fittings:

a  Localization
b  High freq assistance because of low freq suppression
c  Pressure relief in the ear canal
d  Tolerance problem relief
e  Some reported improvement in speech discrimination

220  A vent while providing an escape pathway for amplified sound from the hearing aid can also lead to:

a  Compression
b  Distortion
c  Feedback
d  Low frequency emphasis
e  Increase gain

221  All but one of the following are true about venting:

a  Increases gain in the high frequencies
b  With vent below 3mm in diameter, some low freq gain can occur
c  Pressure relief occurs with vents as small as .025”
d  May reduce the occlusion effect if large enough
e  It generally provides for extreme low freq suppression

220  One of the following does not apply to the CLASSIC CROS

a  Has microphone on the poor ear side
b  Uses an open earmold
c  Uses the head shadow effect
d  Improves hearing for a unilateral loss
e  Has the amplifier and the receiver on the good ear

223  One of the following statements is not true about BiCROS:

a  Off side microphones to overcome head shadow effect
b  Two microphones
c  Two signals to both ears
d  Earmold is generally close type to better ear
e  For some, two sided hearing with one hearing aid
Ear Test Questions

224 Air-Conduction receivers are mostly:
   a Magnetic
   b Ceramic
   c Electret condenser
   d Carbon
   e Crystal

225 In terms of its effect on the frequency response the weakest link in the hearing aid is the:
   a Microphone
   b Receiver
   c Amplifier
   d Power supply
   e Telephone coil

226 A tone control generally acts as a:
   a Low pass filter
   b Output control
   c Volume control
   d High-pass filter
   e Attenuator

227 The amount in (dB) the amplifier SPL exceeds the microphone SPL is:
   a Acoustic output
   b Saturation
   c Overload
   d Distortion
   e Acoustic gain

228 The sum (dB) of input plus gain is:
   a Acoustic output
   b dB gain
   c S/N ratio
   d SSPL/OSPL
   e Distortion
Ear Test Questions

229  Peak output is:
   a  Average SPL of 500, 1000 and 2000 Hz
   b  Expressed in dB HTL
   c  Always read indirectly
   d  The point of maximum amplification
   e  The point of maximum SSPL/OSPL

230  Frequency range is expressed as:
   a  15 dB up from the average of 500, 1000 and 2000 Hz
   b  20 dB down from the average of 1000, 1600 and 2500 Hz
   c  The range from 0 dB amplification in the lows to 0 dB in the highs
   d  Is expressed as the number of cycles between the extremes
   e  range crossing a line across frequency response at 15 dB

231  The representation which shows the performance of an aid at various input levels is the:
   a  Volume and control taper
   b  Distortion curve
   c  Comprehensive frequency response (family of curves)
   d  Basic frequency curve
   e  Frequency range

232  The relationship of peak gain to HF average gain is:
   a  HF average gain is less
   b  They are both the same
   c  HF average gain is more
   d  HF average gain is always 15 dB less
   e  Not enough information

233  The input usually used to record the response curve of a hearing aid is:
   a  50 dB
   b  60 dB
   c  80 dB
   d  90 dB
   e  None of the above
234 Hearing gain is expressed as:
   a  dB
   b  dB SPL
   c  dB HTL
   d  dB SL
   e  dB IL

235 The type 2-cc coupler used most frequently to measure ITE hearing aids is:
   a  HA - 1
   b  HA - 2
   c  HA - 3
   d  HA - C2
   e  Zwislocki

236 An integrated receiver used in hearing aids is the:
   a  Class D
   b  Electret
   c  Magnetic
   d  Directional
   e  FET (field effect transistor)

237 The name associated with the reduced VC setting at which to measure THD is:
   a  HF average gain
   b  EIN
   c  Special purpose average gain
   d  Reference test gain position
   e  ASP kneepoint

238 One of the following statements about microphones is false:
   a  Most microphones are relatively inefficient
   b  Converts acoustic signal to electrical signal
   c  Referred to as an input transducer
   d  Are rated according to frequency response, impedance and sensitivity
   e  Acoustic signal impinges on microphone diaphragm
The sound pressure level associated with 0 dB HTL on the audiometer:

- Varies from audiometer to audiometer (if all are in calibration)
- Varies as a function of frequency
- Is equal to 0.0002 dynes/cm²
- Is the same for all frequencies
- Is the same for speech as it is for pure tones

ANSI calibrated speech audiometer 0 dB under headphones is equivalent to approximately:

- 20 dB SPL
- 10 dB SPL
- 30 dB SPL
- 0 dB SPL
- 0 dB HTL

Zero dB on an audiometer Hearing Level dial:

- Produce intensities that vary as a function of frequency
- Is the same intensity re: 0.0002 dynes/cm²
- Is equal to 0.0002 dynes/cm²
- Has always had the same SP for all audiometric pure-tone standards
- Is 0 sensation level

The SPL associated with 90 dB HL for speech under headphones is:

- 90 dB SPL
- 110 dB SPL
- 70 dB SPL
- 65 dB SPL
- 0 dB SPL

A possible way to use a conventional speech audiometer to determine MPO of an aid is to:

- Limit MPO to the TD reading in HTL
- Convert TD to SPL and limit MPO to this level
- Read TD directly in SPL and limit MPO to this level
- Read TD directly in HTL and subtract about 20 dB
- Not possible to do
One of the most important but overlooked measurements in hearing aid selection is the:

- SRT
- SDS
- TD
- DR
- Binaural effect

Modifications of the hearing aids basic response can be provided by:

- Damping elements in the receiver
- Tubing length
- Cerumen in the sound bore of earmold
- Mechanical tone switches
- All of the above

The two forces being measured on a tympanogram represent _____?

- Compliance and decibels
- Compliance and pressure
- Pressure and Hertz
- Decibel and Hertz

If real ear aided gain is 25 dB, real ear unaided gain is 5 dB, then 20 dB is?

- Real ear functional gain
- Real ear insertion response
- Real ear insertion gain
- Real ear occluded gain
For questions 248 - 249 use the following audiogram. This client was fitted monaurally, two years ago, by another HIS. The client has not been wearing the hearing aids for the last year. The loss is sensorineural (BC = AC).

248 The client might not have great difficulty in which of the following environments _____ ?

- 1 Localizing a speaker in a crowded room
- 2 Understanding voices in background noise
- 3 Speech understanding in quiet

a 1 is correct
b 2 is correct
c 3 is correct
d 1 and 2 are correct

249 The client might benefit most from which of the following?

- a Directional microphone technology
- b Digital signal processing
- c Binaural amplification
- d Digital noise reduction
Use the following audiogram for questions 250 - 20. The loss is sensorineural (BC = AC).

250 Mr. Goodnight is having trouble with feedback on both his 5-week old hearing aids, but is otherwise hearing well. After an initial interview and counseling, you should first….
   a Retest his hearing
   b Perform an otoscopic exam
   c Clean and check the hearing aids
   d Plug the vent

251 The most appropriate modification you might try to alleviate feedback is….
   a Increase the vent diameter
   b Decrease the vent diameter
   c Shorten the vent
   d Bell the canal

252 The amplifier that has a high compression ratio and a high kneepoint is most likely the…
   a DSP
   b Output compression
   c Input compression
   d WDRC
Ear Test Questions

253 HFA full-on gain which uses combinations of frequencies in its calculation…?
   a  500, 1000, and 2000 Hz
   b  500, 1000, and 2500 Hz
   c  1000, 1600, and 2500 Hz
   d  500, 800, and 1600 Hz

254 Reference Test Gain Position is determined by adjusting the gain control so that HFA gain is equal to HFA OSPL 90 _____?
   a  Minus 17 dB
   b  Minus 20 dB
   c  +/- 2 dB
   d  Plus 5 dB

255 ANSI peak gain of a hearing aid is determined when the volume control is adjusted to _____?
   a  Full-on
   b  RTG position
   c  Mid position
   d  WDRC

256 The term that is most similar to the natural ear canal resonance is _____?
   a  REOG
   b  REUG
   c  REAG
   d  REIG

257 Input compression is thought to be most appropriate for _____?
   a  Mild to moderate sensorineural loss
   b  severe to profound sensorineural loss
   c  Conductive loss
   d  All losses in general

258 Output compression is thought to be most appropriate for _____?
   a  Mild to moderate sensorineural loss
   b  severe to profound sensorineural loss
   c  Conductive loss
   d  All losses in general
WDRC is a form of
a Input compression
b Output compression
c Digital Signal Processing
d AGC-O

Caused by central presbycusis, a person who has very poor speech discrimination for a small amount of hearing loss is said to have _____?
a otosclerosis
b phonemic regression
c recruitment
d atresia

While speech discrimination in conductive hearing loss is generally excellent, discrimination in sensorineural loss can best be described as _____?
a excellent
b good
c fair to good
d poor

The auditory system functions within three elements:
a loudness, pitch and frequency
b intensity, frequency and pitch
c intensity, frequency and time
d loudness, time and fidelity

Joe’s ear has a sharply sloping high frequency hearing loss. What acoustical modifications may prove helpful?
a large parallel vent
b use of filters to filter out lows
c lengthen the tubing
d make i. d. of tubing smaller
e use an aid on telecoil switch instead of microphone

Which of the following is not a method of output limiting?
a peak clipping
b diode clipping
c electrical oscillation
d dynamic range compression
Ohm's Law is another name for the law of conservation of energy.

True
False

A formant is
a. a graph showing the amplitude and frequency of a complex sound
b. the fundamental frequency plus all the harmonics
c. the relative strength of all frequencies in a complex sound
d. a synonym for pure tones
e. a frequency region within which certain harmonics have relatively large energy

One of the things that makes the decibel system useful is that
a. exactly one decibel is the smallest change in loudness that can be detected by the human ear at all frequencies
b. it uses a convenient range of 0 - 134 units to permit us to deal with a range of 1 to 5,000,000 units
c. by a coincidence, 0 dB happens to be the weakest sound that can be heard by the best human ears
d. decibels are precise, unchanging units which means the same thing in all circumstances
e. all of the above

The reference level of 0.002 dynes per square centimeters refers to
a. the weakest sound that normal human ears can hear
b. the weakest sound that the best human ear can hear
c. zero decibels on the audiometer
d. all of the above
e. none of the above

Alice complains of tolerance problems with her new hearing aid. What acoustical modification can you make that may be helpful?

a. plug the vent
b. increase size of the vent
c. use longer tubing
d. use filters in earhook
e. change earmold material
The requirement of a listening guide generally indicates that there is a problem
a in that the client should be trained in lip reading before attempting to wear aids
b in the initial selection and fitting of the instrument
c in that the client needs a short course (6-8) weeks in auditory retraining
d all of the above

A person wears an amplification system that consists of one microphone with a receiver in each ear. What does he wear?
a body-aid
b simple CROS
c Y cord
d BICROS
e Binaural

Identifying clients and selecting the appropriate masking level with conductive hearing loss is
a a simple procedure with few problems
b very difficult without impedance tests
c only difficult when one ear is non-functioning
d no problem as long as there is less than 40 dB difference between the two ears

A battery achieves its ‘pumping’ action by
a storing anode and cathode charges in an electrolyte
b a process called OHMS LAW
c removes electronics from the storage device
d separating and holding the positive and negative charges onto two separate terminals

The gain of a hearing instrument may be measured at
a full on gain
b reference test gain control setting
c 50 dB input for AGC instruments
d all of the above

The nerve fibers of the hearing nerve, at the point of maximal stimulation of the basilar membrane, will discharge (i.e. discharge and recover) at the rate of
a up to 1 KHz, identical to stimulus frequency
b 1000 times or cycles /sec.

b 750 times or cycles /sec.
The pure tone audiometer is designed so that zero on the attenuator dial represents:

a. 0.0002 dynes/cm sq.
b. average normal hearing for that frequency
c. the softest sound that the best ears can hear
d. the level of masking needed for that frequency

The air conduction test should incorporate masking whenever there is a difference between the air conduction threshold in the test ear and the bone conduction threshold of the non-test ear of:

a. 10 dB
b. 20 dB
c. 30 dB
d. 40 dB

The lowest frequency that goes to make up most complex sounds is:

a. usually the loudest
b. said to predominate
c. called the fundamental frequency
d. a and c only
e. a, b, and c

Interaural attenuation values vary from person to person but it is greater at 250 Hz and less in the higher frequencies.

True
False

The aid is set at the reference test gain position. You have an input of 60 dB SPL from 200-5000 Hz and you express the difference between the input and the output as a curve. What have you measured?

a. full on gain
b. frequency range
c. attack and release times
d. basic frequency response
e. maximum power output

Most aided measurements, including those done in a sound controlled environment, are ‘sound field’ measurements which can have ‘acceptable’ ambient noise levels of up to:

a. 30 dB SPL
b. 40 dB SPL
c. 50 dB SPL
d. 60 dB SPL
282 The PTA, even when computed from only two frequencies, is a good indication of what the SRT will be  
True  
False

283 Masking is employed during hearing testing to  
   a eliminate the ‘automatic finger’ response  
   b eliminate participation of the non-test ear  
   c improve the threshold sensitivity of the test ear  
   d obtain all of the above

284 The spectrum of input signals on the hearing aid microphone  
   a is the same for all styles of hearing aids  
   b is affected by the head and body of a hearing aid wearer  
   c is unaffected by microphone placement  
   d is unchanged by the pinna effect of the ear

285 CROS (non-occluding) type earmolds are useful when it is necessary to significantly reduce frequencies below  
   a 250 Hz  
   b 500 Hz  
   c 1000 Hz  
   d 2000 Hz

286 The telecoil  
   a utilizes a magnetic induction pickup  
   b uses electromagnetic leakage  
   c is used as one method of coupling assistive listening devices to hearing aids  
   d all of the above

287 A phoneme is composed of several frequencies of varying intensities  
   True  
   False

288 Any complex sound can be broken down into individual frequencies by a technique known as Fourier Spectral Analysis.  
   True  
   False
289 The organ of Corti
a is located in the scala media
b is located in the scala tympani
c is located in the scala vestibuli
d is located in the middle ear
e is located in the Eustachian tube

290 In bone conduction testing, because there is no headphone over the test ear
a the room noise may affect the results
b the test tone will be picked up more quickly in the ear
c the test tone may crossover to the non-test ear at a lesser intensity
d all of the above

291 The electrical signal generated at the microphone is coupled to the amplifier which increases its
a frequency range
b voltage
c wattage
d none of the above

292 The scala tympani is filled with
a hair cells
b cerumen
c the tectorial membrane
d endolymph
e perilymph

293 The reference level for ‘zero’ dB on the speech audiometer is
a 45 dB re: 0.0002 dynes/cm(sq) for a 1000 Hz tone
b 40 dB re: 0.0002 dynes/cm(sq) for a 1000 Hz tone
c 30 dB re: 0.0002 dynes/cm(sq) for a 1000 Hz tone
d 20 dB re: 0.0002 dynes/cm(sq) for a 1000 Hz tone

294 The preferred masking noise to be used for speech audiometry is
a narrow band noise
b noise ‘shaped’ to resemble the speech spectrum
c either a or b
d none of the above
In fitting a hearing instrument one method of choosing gain is
a equal to the SRT
b 15 - 20 dB more than the SRT
c 15 - 20 dB less than the SRT
d of no importance when fitting sensorineural cases

Bone conduction thresholds are defined as
a the weakest bone conduction signal detected at least 50% of the time
b the weakest signal detected in the opposite ear
c the weakest signal where words are understood by bone conduction
d none of the above

As a practical matter it should be noted that whenever the gain requirements exceed 40 dB at 1000 Hz, it may be necessary to
a flatten the indicated response curve
b increase the response above 1000 Hz
c increase the response below 1000 Hz
d increase the high and low response

The exact function of the middle ear muscles is well agreed upon
True
False

The major parts of the inner ear are
a vestibule, cochlea, and perilymph
b vestibule, cochlea, and semi-circular canals
c vestibule, cochlea, and oval window
d vestibule, semi-circular canals, and stapes
e vestibule, semi-circular canals, and endolymph

The output sound pressure level produced by the hearing aid receiver is usually measured in a standardized 2 cc coupler
True
False
Ear Test Questions

301  At what frequency do ‘phons’ and ‘decibels’ correspond?
   a  1000 Hz
   b  2000 Hz
   c  500 Hz
   d  4000 Hz
   e  6000 Hz

302  Dynes per square centimeter (dynes/sq. cm.) is the unit measurement of
   a  sound pressure level
   b  sound pressure
   c  effective sound pressure
   d  maximum sound pressure
   e  acoustic power

303  The new equipment available to the hearing instrument specialist can be used to
   a  measure eardrum mobility
   b  test hearing with or without hearing instruments
   c  analyze the acoustic output of hearing instruments
   d  all of the above

304  Audiometric zero is the same as
   a  0.0002 dynes/cm(sq)
   b  DR
   c  MCL
   d  none of the above

305  The basilar membrane separates
   a  scala media and scala vestibuli
   b  scala vestibuli and scala tympani
   c  scala media and scala tympani
   d  scala tympani and vestibuli
   e  scala tympani and semi-circular canals
Ear Test Questions
Ear Test Questions