

**THE HEARING AID COUNCIL
EXAMINATION PAPER 1 – April 2008**

SECTION A

Answer **THREE** of the following four questions:

1A1

Write short notes on all of the following

- (a) King Kopetzky syndrome or obscure auditory dysfunction? (4)
- (b) Cholesteatoma (4)
- (c) Otitis media with effusion (4)
- (d) Pulsatile tinnitus (4)
- (e) Rotatory vertigo (4)

1A2

- (a) What is a syndrome? (4)
- (b) Describe the clinical appearance of Treacher Collins syndrome (4)
- (c) Plot an example of typical audiometric findings in Treacher Collins syndrome (4)
- (d) How can the amplification needs of someone with Treacher Collins syndrome be met? (4)
- (e) What implications does the syndrome have for future generations? (4)

1A3

Explain the difference between the following:-

- a) dBA and dBSPL (2)
- b) ipsilateral and contralateral stapedial reflexes (2)
- c) syndromal and non-syndromal hearing loss (2)
- d) ossicular fixation and ossicular discontinuity (2)
- e) cochlear and retrocochlear hearing loss (2)
- f) endolymph and perilymph (2)
- g) cochlear microphonic and auditory action potential (2)
- h) organic and non-organic hearing loss (2)
- i) congenital and acquired hearing loss (2)
- j) suppurative and non-suppurative otitis media (2)

1A4

- a) Explain what is meant by progressive, sudden and rapid hearing loss. (3)
- b) Explain what is meant by moderate, severe and profound hearing loss (3)
- c) Explain what is meant by conductive, sensory, and neural hearing loss (3)
- d) Explain how reflex thresholds may help determine the site of lesion for hearing loss. (3)
- e) What effect does dysfunction of middle ear have on reflex thresholds? (3)
- f) What do bilaterally absent contralateral reflexes signify in the presence of normal ipsilateral reflex thresholds bilaterally ? (3)
- g) What could the presence of acoustic reflex decay indicate? (2)

SECTION B

Answer **THREE** of the following four questions:

1B1

- (a) Briefly describe the **acoustic properties** and **method of production** of:-
- (i) vowel sounds (3)
 - (ii) fricative consonants (3)
 - (iii) plosive consonants (3)
- (b) Apart from speech sounds themselves (vowels and consonants), what other features of speech help to convey meaning? (6)
- (c) Discuss the role of speech audiometry in hearing aid fitting. (5)

1B2

- a) What is the speed of sound? (2)
- b) Is the speed of sound greater in solids than gases? (2)
- c) What is the relationship wavelength and frequency? (2)
- d) Sound waves are longitudinal or transverse waves? (2)
- e) If the frequency is 4kHz, what is the period? (2)
- f) What is the usual name given to a frequency modulated tone? (2)
- g) What is the difference between white and pink noise? (2)
- h) What is the difference between refraction and diffraction? (2)
- i) What is resonance? (2)
- j) What is an octave? (2)

1B3

- (a) Define pure tone threshold for hearing (2)
- (b) What is the threshold relative to in an audiometric test? (2)
- (c) What problems may arise when testing the following conditions:
 - i. Moderate bilateral conductive hearing loss (7)
 - ii. Severe asymmetrical sensory-neural loss (7)Describe any additional steps that may need to be taken.
- (d) Once plateau is established what should be plotted on Audiogram? (2)

1B4

- (a) List the principles of masking? (6)
- (b) Describe the type of masking sounds you would use in pure tone audiometry and speech audiometry. (2)
- (c) What are the frequency ranges of these and why do they differ? (4)
- (d) The results of an audiogram show:-
 - a not-masked air conduction threshold at 1kHz of 30dB in the right ear and 50dB in the left and not-masked bone conduction of 5dB.What rules of masking must be applied in this case?
Identify what the different audiometric outcomes that could occur when masking is applied. (8)

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EXAMINATION PAPER 2 – April 2008

SECTION A

Answer **THREE** of the following four questions:

2A1

Client A: Bilateral conductive loss @50dB (BC 'normal' limits)

Client B: Bilateral gently sloping sensory-neural loss @50dB average
(Both clients are otoscopically normal)

- a) Explain the general differences in the above clients' ability to hear in background noise., both pre and post fitting with a suitable hearing system. (8)
- b) How will the difference in the type of hearing loss affect the choice of the following
 - i) Hearing aid (4)
 - ii) Hearing aid settings (4)
 - iii) Aftercare (4)

2A2

In relation to digital hearing aid systems, describe the following features and how they may be of benefit to a hearing impaired client:-

- a) Multiple programmable channels. (4)
- b) Twin/dual microphones. (4)
- c) Feedback cancellation. (4)
- d) Noise reduction. (4)
- e) Listening programs/multiple memories. (4)

2A3

In relation to very small behind the ear hearing aid systems using 'open ear technology', describe the following:-

- a) Their physical characteristics which distinguish them from other hearing aid systems. (5)
- b) The hearing losses to which they are best suited. (5)
- c) Their possible advantages. (5)
- d) Their possible limitations. (5)

2A4

- (a) For each of the five ear impression faults, listed below, describe how they might have occurred and two possible consequences.
- i) Streaked colour (2)
 - ii) Incorrect otostop size (2)
 - iii) Short meatal length (2)
 - iv) Concha overfilled (2)
 - v) Creases or folds (2)
- (b) Describe two possible advantages and two possible disadvantages of each of the following features of BTE moulds
- i) Silicon mould material (2)
 - ii) Small vent (2)
 - iii) Horned tubing (2)
 - iv) Long meatus (2)
 - v) Meatal tip or canal mould (2)

SECTION B

All candidates must answer question 2B1 and 2 out of the other 3 questions

2B1

- a) Under **Clause19** of the Hearing Aid Council's **Code of Practice** what must a dispenser do regarding the manufacturer's warranty when fitting a new hearing aid? (16)
- b) How does this protect the consumer? (4)

2B2

- a) Explain what is meant by the occlusion effect in association with hearing aids. (6)
- b) Explain which features of earmould and shell design affect the occlusion effect. (6)
- c) What audiometric results would suggest that a patient would be likely to report occlusion? (4)
- d) What is meant by the viscosity of an aural impression material and why is it important? (4)

2B3

- a) Explain why a person with a similar level of conductive loss may (or may not) benefit more from a hearing aid than someone with a sensori-neural loss? (6)
- b) What is the purpose of counselling in hearing aid fitting? (4)
- c) What are the possible benefits of bilateral hearing aid fittings? (4)
- d) Does the presence of tinnitus make a difference to hearing aid fitting? (6)

2B4

- a) Explain the difference between linear and non-linear systems? (4)
- b) What are the non-linear features of the ear and hearing aids? (6)
- c) Explain how moulds can affect hearing aid performance. (5)
- d) Explain how listening through a hearing aid in noisy conditions may be improved. (5)

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EXAMINATION PAPER 3 – April 2008

SECTION A

Answer **FOUR** of the following 5 questions

3A1

Client A: Bilateral conductive loss @50dB (BC 'normal' limits)

Client B: Bilateral gently sloping sensory-neural loss @50dB average
(Both clients are otoscopically normal)

- a) Explain the general differences in the above clients' ability to hear in background noise., both pre and post fitting with a suitable hearing system. (8)
- b) How will the difference in the type of hearing loss affect the choice of the following
 - i) Hearing aid (4)
 - ii) Hearing aid settings (4)
 - iii) Aftercare (4)

3A2

In relation to digital hearing aid systems, describe the following features and how they may be of benefit to a hearing impaired client:-

- a) Multiple programmable channels. (4)
- b) Twin/dual microphones. (4)
- c) Feedback cancellation. (4)
- d) Noise reduction. (4)
- e) Listening programs/multiple memories. (4)

3A3

In relation to very small behind the ear hearing aid systems using 'open ear technology', describe the following:-

- a) Their physical characteristics which distinguish them from other hearing aid systems. (5)
- b) The hearing losses to which they are best suited. (5)
- c) Their possible advantages. (5)
- d) Their possible limitations. (5)

3A4

- (a) For each of the five ear impression faults, listed below, describe how they might have occurred and two possible consequences.
- i) Streaked colour (2)
 - ii) Incorrect otostop size (2)
 - iii) Short meatal length (2)
 - iv) Concha overfilled (2)
 - v) Creases or folds (2)
- (b) Describe two possible advantages and two possible disadvantages of each of the following features of BTE moulds
- i) Silicon mould material (2)
 - ii) Small vent (2)
 - iii) Horned tubing (2)
 - iv) Long meatus (2)
 - v) Meatal tip or canal mould (2)

3A5

Explain the hearing difficulties that clients are likely to experience in each of the following situations. In each case, when recommending a hearing aid system, how would you take into account their differing requirements?

- (a) A bilateral, sensorineural hearing loss due to excessive noise exposure. (8)
- (b) A fluctuating hearing loss. (12)

SECTION B

Answer **BOTH** questions:

3B1

- a) Under **Clause 19** of the Hearing Aid Council's **Code of Practice** what must a dispenser do regarding the manufacturer's warranty when fitting a new hearing aid? (16)
- b) How does this protect the consumer? (4)

3B2

- a) List **six** of the conditions under which you would advise the client to seek medical advice. (6)
- b) List what dispensers and employers who are not registered medical practitioners shall **not** do according to the code of practice. (4)
- c) List the items of equipment that a dispenser must have with them at every consultation. (3)
- d) According to **clause 9**, what are the conditions under which audiometry must be carried out by a dispenser. (3)
- e) List the requirements under which a home visit by a dispenser is possible. (4)