

THE HEARING AID COUNCIL

EXAMINATION PAPER 1 – APRIL 2003 (1)

SECTION A

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

- 1A1** (a) How does the cochlea respond to sounds of different frequency? **6**
- (b) How does the cochlea respond to sounds of different intensity? **4**
- (c) What are the tuning curves of the cochlea (psychoacoustical or psychophysical tuning curves, or PTCs) in relation to frequency resolution? **4**
- (d) Explain the differences between the PTCs of a normal and damaged cochlea and how this relates to the problems associated with cochlear hearing loss. **6**
- 1A2** (a) Describe the anatomical and physiological features of the ear which serve to protect:-
- i) the tympanic membrane **6**
and
- ii) the cochlea **6**
- (b) How could sudden marked pressure changes affect these structures? **8**
- 1A3** Conditions can arise in the external ear canal that require special attention in fitting a hearing aid. Describe four such conditions and indicate how you would deal with the situation in each case. **20**
- 1A4** Write short notes on:
- (a) The tympanic membrane **5**
- (b) Endolymph **5**
- (c) Pain referred to the ear (referred otalgia) **5**
- (d) Non-organic hearing loss. **5**

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EXAMINATION PAPER 1 – ARIL 2003 (1)

SECTION B

Answer THREE of the following four questions:

- 1B1** (a) Draw the initial (not masked) audiogram at 1kHz you would expect from a client with congenitally absent outer and middle ears bilaterally but normally functioning inner ears. Explain your answer. **9**
- (b) What masking would be required to complete the testing? **4**
- (c) What problems would you encounter when trying to mask the above results? **4**
- (d) Would the initial audiogram differ if the patient had congenitally absent outer and middle ears bilaterally (as above) but a dead cochlea on the right, and normal inner ear function on the left? Explain your answer **3**
- 1B2** (a) State the information you could obtain about the client's hearing loss from accurate pure tone thresholds and uncomfortable loudness level test. **10**
- (b) Briefly state 5 ways in which you would use this information when discussing the hearing loss with your client. **10**
- 1B3** (a) Discuss the speech spectrum (include reference to formants) using diagrams where appropriate. **10**
- (b) How might a marked high frequency hearing loss affect speech discrimination? **10**
- 1B4** Write short notes on:
- (a) The octave frequency scale and its relevance to hearing **5**
- (b) How you can determine the approximate distance of a sound source **5**
- (c) Factors affecting reverberation time **5**
- (d) Upward spread of masking. **5**

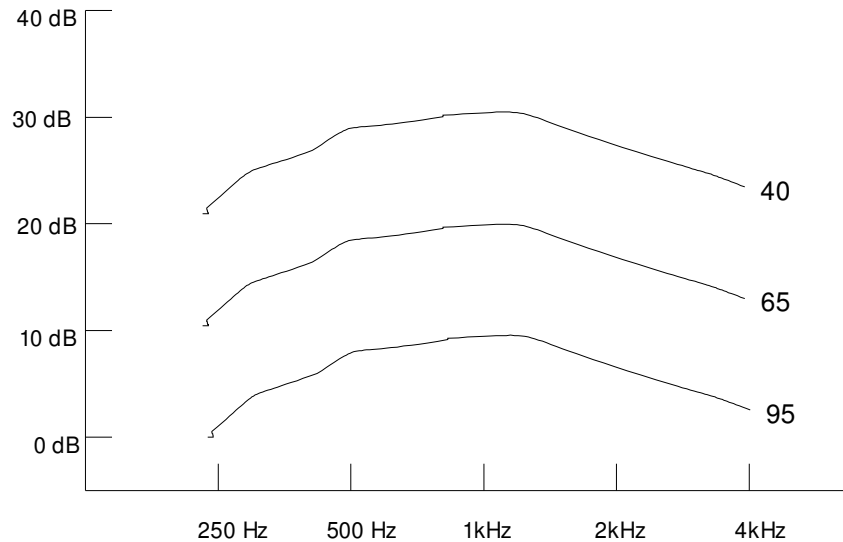
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EXAMINATION PAPER 2 – APRIL 2003(1)

SECTION A

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

2A1



A digital aid produces the above graph on your computer screen when programmed to suit a client:

- (a) What does the graph show? **5**
- (b) What can you tell about the nature of the aid from this graph? **5**
- (c) If you assume that the aid is the correct one, what does the choice of aid tell you about your client? **5**
- (d) Sketch an input/output chart for this aid at 1kHz and *estimate* its compression ratio. **5**

2A2 (a) In order to help your client make an informed choice about hearing aids, outline the key advantages and disadvantages of half-shell (in-the-canal) aids and postaural aids. **17**

(b) Briefly detail 3 aspects of the Code of Practice that are relevant to hearing aid selection. **3**

2A3 Explain how technology can be used to control background noise for the hearing aid user. Include in your answer the different approaches used to combat 'environmental' noise and 'speech noise'.

20

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2A4 (a) Draw a labelled diagram of a hearing aid test box as used to measure the performance of an air conduction hearing aid.

8

(b) Briefly describe four functions of an aid's performance that can be tested in this way.

8

(c) List four functions of an aid's performance that cannot be tested in this way

4

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EXAMINATION PAPER 2 – APRIL 2003(1)

SECTION B

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

2B1 In short note form, explain each of the following:

- (a) The restrictions on surveys regarding hearing loss (clause 17) 4
- (b) The requirements for dispensers to service hearing aids (clause 18) 4
- (c) Guarantee periods for new hearing aids (clause 19) 4
- (d) How dispensers may refer to their premises (clause 16) 4
- (e) The requirements for a calibrated audiometer (clause 8) 4

Include in your answer how these protect the consumer.

2B2 Different people with the same audiometric results will find that their hearing loss affects their lives to different degrees. Explain why the extent of someone's hearing impairment is not a good predictor of the disadvantages suffered. 20

2B3 Write short notes on FOUR of the following:

- (a) The use of neck loops 5
- (b) Hearing Dogs for Deaf People 5
- (c) Dry Aid Kits or de-humidifiers and their use. 5
- (d) 2 different wax traps commonly used on ITE aids 5
- (e) **Either** the Glasgow Hearing Aid Benefit Profile **or** Abbreviated Profile of Hearing Aid Benefit 5

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2B4 An elderly, active and intelligent client was fitted with a binaural in-the-ear hearing aid system approximately 12 months ago.

A relative of the client contacts you to say that the client stopped using two hearing aids after a few months of the fitting and has only worn one of them irregularly over the last 6 to 8 weeks.

- (a) What are the possible reasons for this client not wearing both hearing aids regularly? **6**
- (b) What would you do with a view to ensuring that the client makes regular use of amplification? **6**
- (c) What can you do as a matter of routine practice to avoid such situations from arising? **8**

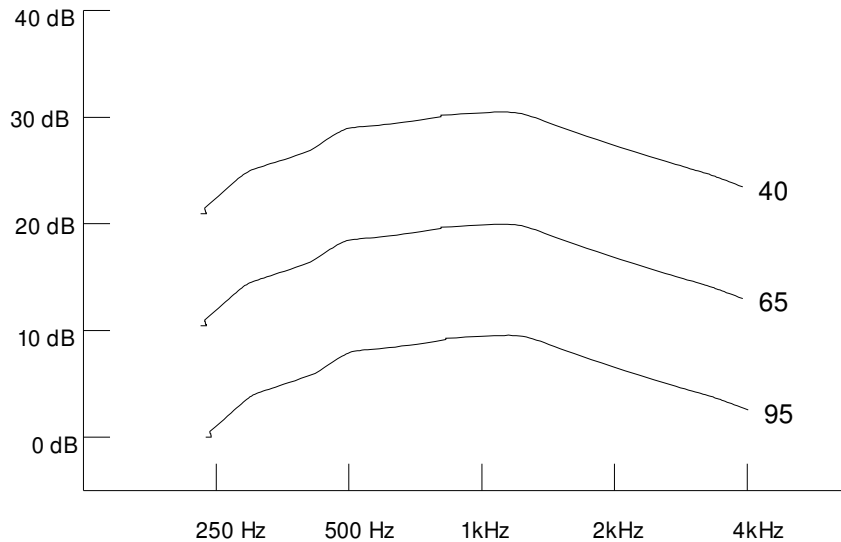
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EXAMINATION PAPER 3 – APRIL 2003(1)

SECTION A

Answer Four of the following five questions:

3A1



A digital aid produces the above graph on your computer screen when programmed to suit a client:

- (e) What does the graph show? **5**
- (f) What can you tell about the nature of the aid from this graph? **5**
- (g) If you assume that the aid is the correct one, what does the choice of aid tell you about your client? **5**
- (h) Sketch an input/output chart for this aid at 1kHz and *estimate* its compression ratio. **5**

3A2 (a) In order to help your client make an informed choice about hearing aids, outline the key advantages and disadvantages of half-shell (in-the-canal) aids and postaural aids. **17**

(b) Briefly detail 3 aspects of the Code of Practice that are relevant to hearing aid selection. **3**

3A3 Explain how technology can be used to control background noise for the hearing aid user. Include in your answer the different approaches used to combat 'environmental' noise and 'speech noise'.

20

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3A4 (a) Draw a labelled diagram of a hearing aid test box as used to measure the performance of an air conduction hearing aid.

8

(b) Briefly describe four functions of an aid's performance that can be tested in this way.

8

(c) List four functions of an aid's performance that cannot be tested in this way

4

3A5 (a) State the information you could obtain about the client's hearing loss from accurate pure tone thresholds and uncomfortable loudness level test.

10

(b) Briefly state 5 ways in which you would use this information when discussing the hearing loss with your client.

10

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EXAMINATION PAPER 3 – APRIL 2003(1)

SECTION B

Answer **BOTH** questions:

3B1 In short note form, explain each of the following:

- (f) The restrictions on surveys regarding hearing loss (clause 17) **4**
- (g) The requirements for dispensers to service hearing aids (clause 18) **4**
- (h) Guarantee periods for new hearing aids (clause 19) **4**
- (i) How dispensers may refer to their premises (clause 16) **4**
- (j) The requirements for a calibrated audiometer (clause 8) **4**

Include in your answer how these protect the consumer.

- 3B2**
- (a) Legally who can be the ‘notified supervisor’ of a trainee dispenser? **4**
 - (b) With reference to four separate clauses of the COP describe 4 responsibilities of a ‘notified supervisor’ in relation to a ‘notified trainee’ **8**
 - (c) During the post-examination period what does the Hearing Aid Council Standard of Competence require of a supervisor and a trainee in respect of the logbooks? **8**