

**THE HEARING AID COUNCIL
EXAMINATION 2004(2)**

1A1

Part 1 Briefly define **or** otherwise explain the difference between:

- a) Moderate and severe hearing loss. 2
- b) Hereditary and congenital hearing loss. 2
- c) Sudden hearing loss and hearing loss of rapid onset. 2
- d) Non-organic hearing loss and Obscure Auditory Dysfunction (OAD or King-Kopetzky syndrome). 2
- e) Acute otitis media (AOM) and otitis media with effusion (OME). 2

Part 2 With regard to part 1 e); In each condition (AOM and OME) describe the symptoms, otoscopic appearances, audiograms, tympanograms and treatment options available. **10**

1A2

- 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

1A3

- a) List 5 **unrelated** causes of hearing loss in **adults**. (5)
- b) In each case describe briefly how the hearing loss happens. (5)
- c) Describe **OR** draw the possible audiometric pattern that you might find in each case. (5)
- d) Choose one condition and **briefly** describe the symptoms, otoscopic Findings and possible management. (5)

1A4

- a) From the medical history and your findings, what would make you suspect that a client has otosclerosis? (8)
- b) What is the mechanism behind the hearing loss in otosclerosis? (4)
- c) Draw a "typical" audiogram that you might obtain. (4)
- d) How might a client with otosclerosis be helped to hear better? (4)

1B1

- (a) How do the acoustic features of speech differ from those of a sustained 1kHz pure tone? (10)
- (b) Your client has a severe sensori-neural hearing loss above 1kHz, but normal hearing in the low frequencies. How is their speech perception likely to be affected? (10)

1B2

Describe the procedure you would follow to carry out unmasked pure tone audiometry on a client who has never previously had a hearing test. (8)

How might your technique need to be varied if:

- (a) testing a very elderly person (4)
- (b) testing someone at home (4)
- (c) testing someone who could not speak your language? (4)

1B3

Describe the composition of 2 types of speech lists commonly used for assessing hearing aid benefit with adults. How are the tests scored using these materials? (6)

b) Describe the relative advantages and disadvantages of these 2 lists. (6)

a) Describe how a simple speech test might be set up and undertaken to assess hearing aid benefit and mention any particularly important aspects. (8)

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1B4

Write short notes on:

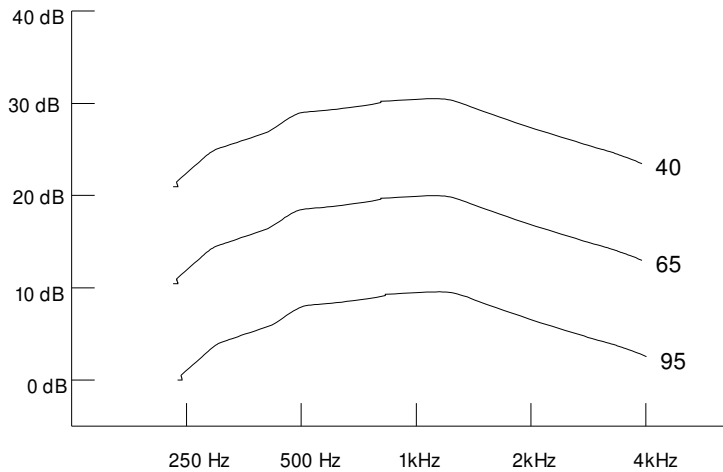
- (a) The octave frequency scale and its relevance to hearing 5
- (b) What are the properties of a sound that allow you to tell whether it originates near to you or comes from a distance? 5
- (c) Factors affecting reverberation time 5
- (d) Upward spread of masking. 5

2A1 & 3A1

Background noise, distance from the speaker and reverberation are three different types of difficult listening conditions a person with a bilateral, sensorineural hearing loss may experience.

- a) For **each** difficult listening condition listed, briefly describe a situation that illustrates the difficulties created and explain why each would be difficult for such a person. **7**
- b) What technical features exist in currently available hearing aids that are designed to assist in **each** of the three situations? In addition to these technical features, what **other** recommendations would you make to minimise each of the difficulties described. **10**
- c) How can hearing tactics assist in each of the three situations? **3**

2A2 & 3A2



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**

2A3 & 3A3

- 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 occlusion. **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**

2A4 & 3A4

Two clients each have a moderate, bilateral, symmetrical hearing loss, one typically sensorineural and the other typically conductive.

- a) Describe the hearing difficulties that these two clients would have in various listening conditions. How might these difficulties be similar or different for each client? 7
- b) Your **general** recommendations for a hearing aid system may not be the same for each client. Describe the similarities and the differences. 6
- c) You choose to **specifically** advise a programmable, digital hearing aid system for each Client. In what ways and why would your approach to programming the hearing aid system result in different performance characteristics. 7

2B1 & 3B1

- a) Who legally can be the 'notified supervisor' of a trainee dispenser? (3)
- b) With reference to seven separate clauses of the Code of Practice describe 7 responsibilities of a 'notified supervisor' in relation to a notified pre-exam trainee (7)
- e) During the post-examination period what does the HAC Standard of Competence require of a supervisor and a trainee in respect of the logbooks? (8)
- f) What are the duties of a supervisor of a trainee who is an applicant for registration undergoing an adaptation period? (clause 29)? (2)

2B2

- a) You feel that binaural aiding is appropriate for your client. Why might they initially reject the idea of wearing binaural hearing aids? (8)
- b) How would you seek to change that attitude – and why? (12)

2B3

How might a person with a severe hearing loss be helped to follow proceedings in a lecture, church service or large meeting? 20

2B4

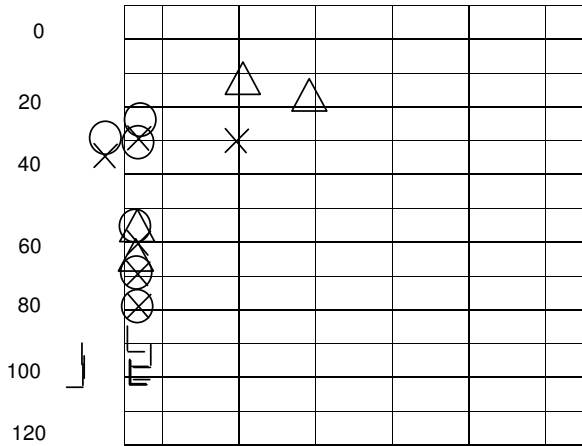
A 28 yr-old client comes to you and tells you that she has been seen by ENT for many years. She has been told that she has a severe hearing loss in her right ear. She works in a large local department store as a floor manager in the TV, Music and HiFi department. On testing, you find a flat 80-85 dBHI loss in her right ear and normal hearing in her left ear. Having explained the results to her, she asks for your help as she is finding her work situation particularly difficult.

- a) LIST the hearing aid and earmould options that you would discuss with her. 3
- b) LIST the main consequences of a unilateral hearing loss. 2
- c) Describe how one of your options in a) would help reduce the effects of a unilateral hearing loss. 8
- d) Having discussed the hearing aid options, she is adamant that she will not wear any hearing aid system at all. What further advice would you offer this lady? 7

3B2

- 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)**

3A5 KS



Study the audiogram above.

- a) Based on this audiogram how would you expect the client to describe their hearing difficulties? **(3)**
- b) Explain the frequency response you are aiming to achieve through a hearing aid fitting and what you want to avoid. **(4)**
- c) In the case of a BTE fitting:
 - 1. Give four reasons why you would choose a binaural fitting **(4)**
 - 2. Give four reasons why you would choose to fit monaurally **(4)**
 - 3. State what earmould style and material you would select and why **(3)**
 - 4. State what tubing you would use and why **(2)**