



Queen Margaret University
EDINBURGH

SCHOOL OF HEALTH SCIENCES

DIVISION OF SPEECH & HEARING SCIENCES

LEVEL 1 DIET 1

MODULE CODE: S1185

MODULE TITLE: Introduction to Hearing Aid Audiology

<u>DATE: 13/12/2016</u>	<u>TIME: 2.00PM</u>
<u>WRITING TIME: 2 hours</u>	<u>READING TIME: 5 minutes</u>

INSTRUCTIONS:

Please answer all 16 questions

PAPER SETTER: Jo White

S1185 – Introduction to Hearing Aid Audiology

Please answer all questions

1. Why is it not possible for sound to travel through a vacuum?

(Total 5 marks)

2. Match each of the following terms with the correct definition.

- i. Period
- ii. Frequency
- iii. Inverse Square Law
- iv. Sine wave
- v. Amplitude
- vi. Wavelength
- vii. Pascal
- viii. Decibel
- ix. Periodic wave
- x. Aperiodic wave

- a. The number of times a waveform repeats itself in one second
- b. A waveform that repeats the same shape again and again
- c. The amount time taken to complete one cycle of a wave
- d. The maximum variation in air pressure caused by a wave
- e. A wave with no regular repeating pattern
- f. The SI unit of sound pressure
- g. A logarithmic unit used to measure sound intensity levels
- h. The waveform of a single frequency sound or pure tone
- i. The distance from any point on one wave to the same point on the next wave.
- j. The mathematical relationship between intensity and distance

(Total 10 marks)

3. Why are hearing thresholds typically measured in dB HL rather than dB SPL?

(Total 5 marks)

4. What is the range of frequencies that are audible to the human ear? Why do we typically only measure hearing thresholds for frequencies between 250Hz and 8,000 Hz?

(Total 5 marks)

5. What are the benefits of having two ears, rather than one?

(Total 5 marks)

6. In pure tone audiometry we measure hearing thresholds. How do we define a subject's hearing threshold for a pure tone?

(Total 5 marks)

7. Match the following structures to a description of their basic functions:

Structure

- | | | | |
|------|---------------------|-------|----------|
| i. | The pinna | _____ | (1 mark) |
| ii. | The stapes | _____ | (1 mark) |
| iii. | The eustachian tube | _____ | (1 mark) |
| iv. | The cochlea | _____ | (1 mark) |
| v. | The scala media | _____ | (1 mark) |
| vi. | The scala tympani | _____ | (1 mark) |

Basic Function

- a) contains perilymph
- b) performs frequency analysis of incoming sound
- c) connects the middle ear with nasopharynx
- d) contains endolymph
- e) helps with sound localization
- f) transmits sound to the oval window

(Total 6 marks)

8. Give a brief definition of the following terms:

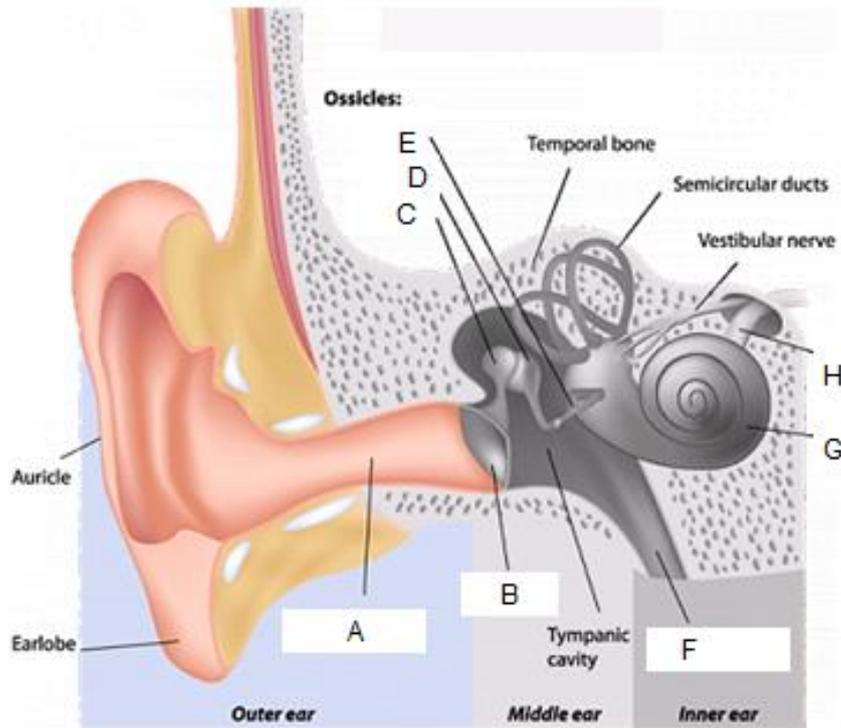
a) anatomy (2 marks)

b) physiology (2 marks)

c) pathology (2 marks)

(Total 6 marks)

9. Provide names for the structures labelled A to G in the diagram below:



(Total 8 marks)

10. How is the scope of practice of the Hearing Aid Dispenser different from that of the Audiologist?
(Total 10 marks)

11. When should you establish a requirement for the referral of a client for a medical or other specialist opinion and/or treatment?
(Total 3 marks)

12. List 2 criteria for referral of a client for a medical or other, specialist opinion and/or treatment.
(Total 2 marks)

13. Describe what is meant by reflective practice? Give two examples of how this can improve your work with clients? (Total 5 marks)

14. What are the main differences between the client-centred model and the medical model of rehabilitation? Name one advantage of each model in aural rehabilitation.
(Total 5 marks)

15. You are setting up a new, private, hearing aid clinic. You need to decide which would be the best hearing aids to offer to your clients. You also need to write some 'good practice' guidelines for your audiologists to follow. What is evidence based practice, what kind of evidence would you need to ensure you make good, evidence-based decisions and where might you find it?
(Total 10 marks)

16. Once your hearing aid clinic has been running for a year, you decide to carry out a clinical audit. Please answer the following questions:

What is a clinical audit ? (4 marks)

What kinds of evidence could you collect to help determine whether your clinic has been meeting the needs of your clients? (6marks)

(Total 10 marks)

End of Paper