A QUESTION BANK ON HEARING AIDS

Register No 8512

An Independent project submitted as part fulifilment for
First year M.Sc.(Speech and Hearing)
to the University of
Mysore.

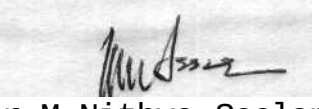
All India Institute of Speech & Hearing
MYSORE-570 006.

MAY—1986

DEAREST NAANNA AND AMMA

CERTIFICATE

This is to certify that the Independent Project entitled: A QUESTION BANK ON HEARING AIDS, is the bonafide work, done in part fulfilment for First Year M.Sc., (Speech and Hearing) of the student with Register No.8512.



Dr.M.Nithya Seelan
Director
All India Institute of
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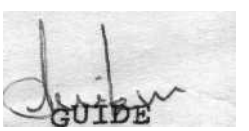
Mysore - 570 006.

CERTIFICATE

This is to certify that the Independent Project entitled; A QUESTION BANK ON HEARING AIDS, has been prepared under my supervision and guidance.



Dr.(Miss) S. Nikam,
Prof, and Head,
Audiology Department.

DECLARATION

I hereby declare that this Independent Project entitled: A QUESTION BANK ON HEARING AIDS, is the result of my own study under the guidance of Dr.(Miss) S.Nikam, Professor and Head of the Department of Audiology, All India Institute of Speech and Hearing, Mysore, and has not been submitted earlier at any University for any other Diploma or Degree.

Mysore Register No.8512

Dated April 1986.

ACKNOWLEDGEMENT

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TABLE OF CONTENTS

INTRODUCTION

Hearing aid is an electroacoustic device used for the amplification of sounds. Hearing aid is a necessity for the Individual with hearing loss, who experience difficulty in one or more of the daily activities either vocationally, educationally or socially. This amplification system increases the intensity of the sound reaching the ear, and the main purpose of amplification is to utilize the individual's residual hearing to the fullest extent possible. So, the amplification device for the hearing handicapped is the first important rehabilitative measure.

This project deals with the gudstions on the different aspects of hearing aids. The questions are framed on the different topics of each aspect of hearing aids.

Objectives of this project:

1. An important aspect of training program is the selection of suitable samples for determining the level of competency reached. Level of competency differs with different levels of training.

   In India, preparation of evaluation procedures acquire added significance because of students and staff coming from multilingual background. Because of variation in the knowledge and usage of English, students might face difficulty in understanding and answering the questions.

Appraisal and evaluation of the effectiveness and ongoing assessment of goals and objectives of training program is essential. Even with prescribed syllabus, the training programs differ in terms of emphasis placed on different areas. Through this project an attempt is made at attaining the required uniformity.

2. To get collective information about different aspects of hearing aids so that this serves as a guide for trainees and examiners.

3. It can be used to evaluate trainees before and after the training program.

4. It can be used to assess student' s abilities in different aspects of hearing aids.

5. It can be used to monitor student's knowledge in under-standing of the subject.

6. It can be considered as a reference for examination and interview purposes.

7. The given set of questions are designed to function as a self-study guide as well as a supplemental text for courses on hearing aids.

QUESTIONS

Historical Development of Hearing Aids:

1. Trace the historical development of modern hearing aids?
2. Describe the different sound collectors.
3. Explain hearing by bone conductors.
4. What are the ear inserts?
5. Describe the carbon transmitter hearing aids.
6. Describe the vaccum tube hearing aids.
7. Describe the transistor hearing aids.

Electroacoustic characteristics of Hearing Aids:

1. what is the rationale behind the Electroacoustic measurements of hearing aids?
2. What is the purpose of standards for hearing aids?
3. What are the electroacoustic characteristic measurements specified by ANSI Standards for Hearing Aids? Describe them;
4. What are the performance characteristics measurements specified in HAIC standards? Describe them.
5. What are the electroacoustic characteristic measurements specified by ISI Standards for Hearing Aids? Describe them.
6. What are the important characteristic measurements specified by ANSI in addition to the HAIC?
7. What are the electroacoustic characteristics measured in a Hearing Aid as per HAIC, ANSI, ISI and others? Prepare a comparative table.

8. What is Saturation Sound Pressure Level?
9. What is gain? What are the different types of gains measured with Hearing Aid?
10. What is output limiting? Describe the different types.
11. What is distortion? Explain the different types of distortions related to Hearing Aids?
12. Describe the methods through which the frequency response of a Hearing Aid can be altered to meet the specific needs of the Hearing Aid user.
13. What are the effects of gain control, tone control, and batter voltage on frequency response of a Hearing Aid?
14. What is the source of internal noise in a hearingaid? Explain how you measure it? What is the significance of internal noise?
15. What is electromagnetic induction? What is its significance in Hearing Aids?
16. Explain the m meaning and significance of frequency response of microphone, frequency response of amplifier, and frequency response of receiver.
17. Describe the different types of feed backs in Hearing Aids.
18. How can the feed backs in a Hearing Aid can be overcome?

Couplers and earmolds for Hearing Aids:

1. What is a coupler? What does it do?
2. What is an earmold?

3. Describe the different types of earmolds?
4. Discuss the earmold design features that may be used to modify Hearing Aid performance.
5. Describe tubing and venting.
6. What are the effects of tubing length, tubing inside diameter on Hearing Aid response?
7. What are VVV and PVV? Describe them.
8. What are the effects of venting on maximum power output?
9. What are the mechanical insert fittings? Explain each.
10. Describe the different couplers used for special type fittings.
11. What is the equipment required for taking ear impression?
12. What are the materials used for taking ear impression?
13. Describe the procedure of taking an ear impression.
14. Describe the different techniques of making an ear impression.
15. What are the basic physical principles underlying earmold acoustics?
16. Explain how the acoustic effects of earmold are assessed using 2cm coupler measures, zwislocki coupler measures and probe microphone measures.

Receivers. Cords and Batteries for Hearing Aids:

1. What is a receiver? What are the parameters of a Hearing Aid receiver?
2. What are the different types of receivers used with the hearing aids?
3. What are the different markings made on receiver?

4. What is an airconduction receiver? Describe the different types of airconduction receivers used with hearing aids.
5. What is a boneconduction receiver? What are the requirements it should meet?
6. What are the different types of cords used with Hearing Aids? Explain each of them.
7. What are the differences between'V' cord and Pseudo ' V' cord?
8. What are the different types of batteries used for Hearing Aids?
9. Explain briefly the historical developments regarding batteries for Hearing Aids.
10. What is Lachlanche cell? What are its advantages and disadvantages?
11. What is a Silver Oxide cell? What are its advantages and disadvantages?
12. What is a Mercurry cell? What are its advantages and disadvantages?
13. What is an Alkaline cell? What are its advantages and disadvantages?

Hearing Aid Selection and Evaluation:

1. What are the factory determining the Hearing Aid candidacy?
2. Explain the preliminary considerations in the selection of Hearing Aids.
3. What are the various factors to be considered in Hearing Aid selection?
4. What is the significance of audiogram in the selection of a Hearing Aid?

5. Who is considered to be a candidate for amplification?
6. Describe the traditional or conventional Hearing Aid evaluation and selection procedures.
7. What are the assumptions underlying the traditional Hearing Aid evaluation and selection procedures?
8. What are the difficulties with the traditional Hearing Aid evaluation procedures?
9. Explain the different procedures of selection of hearing aids for the adults.
10. What are th e variables in the hearing aid selection processes for the adults?
11. Explain the different subjective methods used for the selection of Hearing Aids?
12. Describe the speech audiometric techniques used for selection of Hearing Aids.
13. Explain the procedure adopted to select a Hearing Aid using an impedance audiometer?
14. Explain the different procedures of selection of Hearing Aids for the children.
15. On What basis would you select the initial hearing and for children?
16. Discuss the different philosophies on Hearing Aid fitting.
17. How is the master Hearing Aid made use of in Hearing Aid selection fitting?

Special Applications of Amplification System:

1. What is CROS?
2. What are the benefits of CROS?
3. What is the criteria for recommending CROS Hearing Aids?
4. What are the different variations of CROS? Describe them.
5. What is IROS?
6. What is PROS?
7. What is frequency transposition? How is it achieved? What are its merits?
8. What are the effects of frequency transposition?
9. What are the transpositional Hearing Aids? Describe them.
10. What is directional hearing? What are the factors affecting it?
11. What are directional Hearing Aids?
12. What is low frequency emphasis amplification? How it is achieved? What are the merits and demerits of the same?
13. What is high frequency emphasis amplification? How is it achieved? What are the merits and demerits of the same?
14. Explain the commercially made master Hearing Aids,
15. Describe the HAIC master Hearing Aid.
16. According to you what is the ideal master Hearing Aid?
17. Describe the implantable Hearing Aids.
18. What are the Piezo electric implants?
19. What are the direct cochlear implants? Describe them.
20. Describe direct VIII nerve stimulation.
21. Describe the direct cortical stimulation.

Binaural Hearing Aids:

1. Describe monaural, binaural and pseudobinaural amplifications.
2. What is the rationale behind binaural amplification?
3. What are the advantages of binaural hearing over monaural hearing?
4. Give an account of clinical and research evidence of binaural advantage.
5. What are the guidelines for consideration of binaural amplification?
6. Who can obtain worthwhile benefit from binaural Hearing Aids?
7. Under what conditions of listening are binaural Hearing Aids superior to monaural Hearing Aids?
8. With what type of aids are binaural advantages more apparent?
9. How does binaural enhacement of speech intelligibility take place?
10. How do binaural hearing aids help in speech intelligibility?
11. How do binaural Hearing Aids help in directional hearing ?
12. What is pseudobinaural amplification? What are the advantages of it over monaural arrangement?
13. Define interaural phase difference.

Amplification in Education System:

1. Describe the ten (10) principles given by Ross (1973) in the use of amplification in the educational setting.

3. Describe the hard wire systems and their advantages and disadvantages.
4. Describe the induction loop amplification system and its advantages and disadvantages.
5. Describe the radio frequency systems and their advantages and disadvantages.
6. Describe MACOIL system. What are its advantages and disadvantages?
7. What is spill over effects How to overcome that?
8. How would you choose amplification systems in
   (A) School for the deaf.
   (B) Integrated program.
9. Describe the classroom instrumentation using selective amplification.

Auditory Trainers:

1. Describe the history and development of the auditory training systems.
2. Describe the protocols for choosing an auditory training unit.
3. How to select an appropriate acoustical environment for the auditory training?
4. What is the role of auditory trainers in speech habilitation for the deaf child?
5. What are the electroacoustical parameters for the auditory trainers?

6. Give an account of the test equipment used to analyze auditory training systems electroacoustically.
7. How do you select an auditory training system?
   (i) for individual training.
   (11) for group training.
8. Justify the needs for standards for the different kinds of auditory trainers.

Hearing Aid Orientation and Counselling:

1. What are some of the general misconceptions about the amplification and hearing aids?
2. How do you explain the need for amplification to the hard of hearing?
3. How do you counsell the parents that their child is in need of Hearing Aid?
4. Discuss the role of counselling in satisfactory usage of Hearing Aid.
5. What is informational counselling? Explain.
6. What is personal adjustment counselling? Explain.
7. How do you assess the client's attitudes towards the use of Hearing Aids? What would you do to bring about a change?
8. How would you instruct the client in operation and care of a hearing aid?
9. How to develop realistic expectations in a hearing aid user?
10. How do you counsel a case for the initial usage of a Hearing Aid?

11. What are some of the psychological difficulties in accepting a Hearing Aid? How to overcome them?
12. What should be the attitude of parents, teachers and playmates in acceptance of a Hearing Aid?
13. What should be the environment for optimum use of Hearing Aid?
14. What is the role of the amplified signal in developing communication skills?
15. What is communication profile? Is there need for the communication profiles? Discuss.

Miscellaneous:

1. What are the basic components of a Hearing Aid?
2. What are the different controls on Hearing Aid? Explain the function of each.
3. What are th e different types of Hearing Aids? Classify various Hearing Aids. What are their advantages and disadvantages?
4. What functions of audition do we gain through amplification?
5. What are the shortcomings of environment for the usage of Hearing Aids?
6. Hearing Aids have acquired a high level of sophistication in terms of size. Justify.
7. What are the important factors to be considered while purchasing a Hearing Aid?
8. Describe the conventional Hearing Aid - earmold system.

9. What are the environmental tests? Explain the significance of the tests recommended for testing Hearing Aids.
10. Explain temperature tests, shock tests, humidity tests and vibration tests with reference to checking hearing aids.
11. What are the indications for Hearing Aid usage to the conduction Hearing loss cases?
12. What types of Hearing Aids are given to the conductive Hearing loss patients?
13. Describe the procedure for trouble shooting of Hearing Aids.
14. What is body baffle effect? What is its significance?
15. What is headshadow effect?
16. What is squelch effect?
17. What is acoustic transformer or horn effect?
18. Explain Carlson's twin-tube procedure.
19. What are the differences between real ear and 2cm (cc) coupler?
20. Describe the zwislocki coupler. How is it used in Hearing Aid test box?
21. What is KEMAR? How is it similar to the average human head, ear and body?
22. What are the applications of KEMAR? Explain with suitable examples.
23. Explain the electroacoustic evaluations with KEMAR.
24. Explain the setting up of sound field for KEMAR.

ACRONYMS ON HEARING AIDS

Expand the following acronyms and write short notes on them.

1. AM	2. A3C	3. AVC
4. ANSI	5. ASA	6. BF
7. BS	8. BV	9. BBE
10. BFO	11. BOHA	12. BICROS
13. CP	14. CL	15. CPS
16. CRIS	17. CROS	18. EM
19. EP	20. EW	21. EIT
22. EINC	23. FC	24. PR
25. FDA	26. PET	27. FRC
28. PROS	29. Focal CROS	30. GHA
31. GLR	32. HA	33. HD
34. HAT	35. HSE	36. HAIC
37. HATB	38. MICROS	39. IC
40. IM	41. IEC	42. ILA
43. IMD	44. ISI	45. IROS
46. KEMAR	47. LDL	48. MA
49. MACOIL	50. MS	51. MCL
52. MLD	53. MPO	54. MINI CROS
55. MULTI CROS	56. NAEL	57. OPEN BICROS
58. POWER CROS	59. POGO	60. PVV
61. RM	62. RS	63. RIG
64. RFFM System	65. S3	66. SW
67. SAV	68. SNR	69. $SSPL_{90}$
70. SSPL	71. VVV	72. WMHA

NAMES IN JUMBLED FASHION

Following are the names of persons in Jumbled fashion. Rearrange the names in proper fashion and write about their contributions towards Hearing Aids (Answers on each should not be less than 5C words and should not be more than 200 words).

I. REEXANDAL HABGAM LEBL

2. RATHUR M LENGEW

3. GERBER NEKTHEN

4. KEYSRIB

5. DANRBER

6. KARENEB

7. NYRBE

8. NAICE

9. OXC

10. SARCOLN

II. lVADS

12. SKIRD AND NAMGIL

13: BEERR

14. TECHRELF

15. SIRHAR

16. DOGSHON

17. FORHARD AND KUTSEM

18. SANOJOHN

19. STANEK

20. OWNSELK

21. LIONKIL

22. GOENKI

23. MOTTERNAL

24. GERBARLY

25. ROMEO

26. CALKLOP

27. SLONICH

28. DONYARM CHAARRT

29. SORS

30. NEVILSRAM

31. DEBASTUKER

32. NIKSERN

33. CHASS AND DARKHURB

34. ROTLAY

35. SATNOW AND LANTO

36. SWANKORND

37. SILKCOWIZ

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