Reg. No. | | | | | | | | |

AH 101

Credit Based I Semester M. Sc. Audiology Degree Examination, February 2024
(Semester Scheme) (2020-22 Batch Onwards)
Research Methods, Epidemiology and Statistics

Time: 3 Hours Max Marks:70

Unit I

1. Bring out the importance of the observation method and its types in communication disorders with suitable examples. (14)

OR

2. a) Discuss the format and writing style for a project proposal. (6)

   b) Write a short note (4X2)

   i. Ex-post facto research
   ii. Standard group comparison

Unit II

3. Define epidemiology. Highlight the various epidemiological measures used in the field of speech and hearing. (14)

OR

4. a) Describe the characteristics of causality of association in epidemiological research. (10)

   b) Compare and contrast cross-sectional and case-control studies (4)

Unit III

5. a) What is the procedure of hypothesis testing and decision-making? (6)

   b) Test whether is there any significant association between Atherosclerosis and smoking (Table value=3.84) (8)

		Atherosclerosis	
		Yes	No
Smoking	Yes	5	30
	No	20	10

OR

6. a) Explain measures of central tendency with examples. (7)
   b) Test if is there any significant association between gender and literacy (Table value=3.84). (7)

		Gender	
		Male	Female
Literacy	Literate	8	7
	Illiterate	5	6

Unit IV

7. a) Write the assumptions of ANOVA (5)
   b) Is there a statistically significant difference in mean calcium intake in patients with normal bone density as compared to patients with osteopenia and osteoporosis? (Table value=3.68) (9)

Normal bone density	1200	1000	980	900	750	800
Osteopenia	1000	1100	700	800	500	700
Osteoporosis	890	650	1100	900	400	350

OR

8. a) Define Principal component analysis (5)
   b) Write a short note on (3X3)
   i. Null and Alternative hypothesis
   ii. Type I and Type II error
   iii. Level of significance and Power of the test

Unit V

9. Elaborate on the levels of evidence. Explain in detail how it varies for RCT and Quasi-experimental studies (14)

OR

10. a) Enumerate the difference between systematic review and meta-analysis in terms of its level of significance (10)
    b) Write a short note on the confidence interval (4)

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AH102

Credit Based I[st] Semester M.Sc. (Audiology) Degree Examination,

February 2024

(Semester scheme) (2020-22 Batch Onwards)

Cochlear Physiology

Time: 3 Hours **Max. Marks: 70**

Unit I

1. Explain the homeostatic mechanisms in cochlea (14 marks)

OR

2. a. Explain advances in cochlear regeneration (8 marks)
   b. Explain structures of organ of corti (6 marks)

Unit II

3. Explain Basilar membrane physiology(14 marks)

OR

4. a. Describe the techniques to study haircell physiology (10 marks)
   b. Explain the role of tectorial membrane in hearing (4 marks)

Unit III

5. a. Explain the role of efferent control in hearing (6 marks)
   b. Describe the physiology of hearing in Fish (4 marks)
   c. Discuss the role of micronutrients in cochlear physiology (4 marks)

OR

6. a. Describe the anatomy of rostral efferent system (7 marks)
   b. Differentiate lateral vs medial olivocochlear bundle (7 marks)

Unit IV

7. a. Explain the fine structure DPOAEs (6 marks)
   b. Describe the characteristics of DPOAE (4 marks)
   c. Explain the contralateral suppression of DPOAE (4 marks)

OR

8. Explain the instrumentation and techniques for recording different types of OAEs.(14 marks)

Unit V

9. a. Explain the analysis and interpretation of electrocochleography (8 marks)
   b. Explain the different techniques of recording electrocochleography (6 marks)

OR

10. a. Explain the generation of endocochlear potential (8 marks)
    b. List the clinical application of electrocochleography (6 marks)

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AH103

Credit Based I[st] Semester M.Sc. (Audiology) Degree Examination,

February 2024

(Semester scheme) (2020-22 Batch Onwards)

Hearing Sciences

Time: 3 Hours **Max. Marks: 70**

Unit I

1. Explain and critically evaluate various psychophysical procedures of threshold estimation. (14)

OR

2. Explain adaptive psychophysical methods and explain its importance over classical method.(14)

Unit II

3. Describe models of loudness perception. (14)

OR

4. a. Compare loudness perception in individuals with normal hearing and cochlear hearing loss. (7)

   b. Highlight the consequences of altered loudness perception on speech perception (7).

Unit III

5. a.Explain the temporal theory of pitch perception. (10)

   b. Describe one method to assess frequency resolution. (4)

OR

6. Discuss factors affecting pitch perception. (14)

Unit IV

7. a.Write an essay on non-simultaneous masking. (8)

   b. Compare masking and excitation patterns in normal hearing and hearing impaired (6)

OR

8. Explain critical band concept. Discuss various methods and procedure to derive critical bandwidth and shape. (14)

Unit V

9. a. Write a note on central masking (6)

   b. Explain comodulation masking release. (8)

OR

10. Effect of hearing loss on non-peripheral masking. (14)

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AS104

Credit Based I[st] Semester M.Sc. (Audiology) Degree Examination,

February 2024

(Semester scheme) (2020-22 Batch Onwards)

Auditory Disorders

Time: 3 Hours **Max. Marks: 70**

Unit I

1. Discuss various diseases of the external ear, with an emphasis of aetiology and clinical manifestations (14 Marks).

OR

2. a. Describe the significance of immittance audiometry in assessment of middle ear functioning (8 Marks)
   b. Write a note on reconstructive and rehabilitative procedures for management of congenital malformations of external ear (6 Marks)

Unit II

3. Prepare audiological profiles of persons with various inner ear disorders (14 Marks)

OR

4. a. Describe the pathophysiology of various inner ear disorders (10 Marks)
   b. Write a brief note on non-audiological management of Meniere's disease and Sudden hearing loss (4 Marks)

Unit III

5. Explain the pathophysiology and audiological profile of Noise Induced Hearing Loss / NIHL (14 Marks)

OR

6. Describe the various levels of prevention of NIHL and traumatic injury to inner ear. Note down the national and international guidelines for hearing conservation programmes (14 Marks)

Unit IV

7. a. What are the space-occupying lesions of the auditory nerve and brainstem? (6 Marks)

   b. Describe audiological and radiological findings based on their pathophysiology (8 Marks)

OR

8. a. Discuss the challenges in the diagnosis of space-occupying lesions of Auditory nerve and brainstem (6 Marks)

   b.Explain the non-audiological and audiological management of space occupying lesions of Auditory nerve and brainstem (8 Marks)

Unit V

9. a. Discuss the etiology and pathophysiology of Auditory Neuropathy Spectrum Disorders (ANSD). (7 Marks)

   b. Describe how audiological findings correlate with the pathophysiology of ANSD. (7 Marks)

OR

10. a.What are the management options available for persons with ANSD. 8 Marks)

    b. Discuss the challenges in management of ANSD (6 Marks)

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AS106

Credit Based I[st] Semester M.Sc. (Audiology) Degree Examination,

February 2024

(Semester scheme) (2020-22 Batch Onwards)

Technology in Audiology

Time: 3 Hours **Max. Marks: 70**

Unit I

1. a. Write a short note on Sampling in Digital signal Processing. (7)
   b. Write a short note on FM transmission and reception. (7)

OR

2. What are the different types of NOISE in the evoked potential recording? What are the steps taken to reduce them? (14).

Unit II

3. With a block diagram explain the working of Speech recognition system. (14)

OR

4. a. Write a note on Linear Predictive Coding (LPC). (7)
   b.Write a note on cepstral analysis. (7)

Unit III

5. Explain the working principle of fMRI. (14)

OR

6. a. Write a short note on Transcranial Magnetic Stimulation (TMS). (7)
   b. Write a note on intraoperative monitoring of sensory and motor functions. (7)

Unit IV

7. With a block diagram explain to how tele-technology is used to conduct video conferencing. (14)

OR

8. a. Explain the storage and transmission of data in tele-rehabilitation. (6)

   b. Discuss the application of tele-technology in audiology (8)

Unit V

9. a. Explain the calibration and maintenance of a clinical diagnostic audiometer. (7)

   b. How to record, normalize and reduce noise of a speech signal using Audacity software. (7)

OR

10. a. Write a note on two software applications used in rehabilitation of hearing related disorder. (8)

    b. Describe calibration of stimuli in ABR system. (6)