

AB 010

**M.Sc. II Semester Examination, May/June 2006
(Semester Scheme)**

**Audiology
Neurophysiology of Hearing**

Time: 3 Hours

Max. Marks: 80

Instruction: Answer all questions.

- I. 1. a) Briefly describe the unique properties of the auditory nerve. 6
b) How do single nerve recordings help throw light on coding of stimuli in auditory nerve ? 10
OR
2. What role does the auditory nerve play in coding complex signals ? 16
- II. 3. Discuss the role of inferior colliculus and MGB in hearing. 16
OR
4. Discuss tonotopic organization in the upper brainstem. 16
- III. 5. Describe the anatomy of auditory cortex in detail. 16
OR
6. Describe stimulus coding in the auditory cortex. 16
- IV. 7. a) Write an essay on the role of facial nerve in audition. 8
b) How do we study the efferent auditory system ? Quote recent research on C.A.S. of O.A.Es.
OR
8. Discuss the physiology of efferent auditory system in detail. 16
- V. 9. Why are neurotransmitters and neuro modulators essential in hearing ? 16
10. Write a brief essay on the different neurotransmitters important in hearing. 16

AB 020

M.Sc. (Audiology) II Semester Examination, May/June 2006

Semester Scheme

Audiology

Psychophysics of Audition in Normals

Time: 3 Hours

Max. Marks: 80

Instruction : Answer all the questions.

I. 1) Discuss the effects of non-simultaneous masking on the measurement of output of auditory filters. 16

OR

2) Compare critical band theories with that of profile analysis at the level of cochlea,

II. 3) Compare adaptation and fatigue focussing on psychophysical and auditory characteristics. 16

OR

4) Describe the levels at which adaptation occurs. Bring out clearly the physiological basis at each level.

III. 5) How is localisation different from lateralization ? 16

OR

6) Discuss the neurophysiological processes underlying localization.

IV. 7) Compare the various models of precedence effect. 16

8) Write an essay on acoustic parameters that affect binaural hearing. Rely on research evidence.

V. 9) Compare the perception of pure tones with that musical tones. Will the perception of swaras (sa, ri, ga etc) be akin to that of pure tones ? Justify your view. 16

OR

10) What are the central auditory processes involved in the perception of music.

AB 030

**M.Sc. (Audiology) II Semester Examination, May/June 2006
(Semester Scheme)**

**Audiology
Implantable Devices for the Hearing Impaired**

Time : 3 Hours

Max. Marks: 80

Instruction: Answer all questions.

- I. 1) a) How would you assess the effectiveness of BAHA ? Critically examine the relative importance to be given to the performance of the subjects on audiological tests and the subjects perception of the usefulness of the device in determining the effectiveness of BAHA. 12
- b) Write a short note on contraindications for middle ear implants. 4
- OR
- 2) a) How would you justify BAHA and middle ear implants considering the excellent results that digital hearing aids bring about ? 12
- b) Write note on BAHA in pediatric population. 4
- II. 3) a) Benefit received from hearing or traditional amplification should be the key factor in determining candidacy for cochlear implant. Critically evaluate this statement. 10
- b) What has polytetraflouroethylene got to do in cochlear implants ? What are the substitutes available for this ? . 6
- OR
- 4) a) What are the special considerations in choosing children below 24 months for cochlear implants ? 12
- b) What will you do when children suddenly stop responding to input from their cochlear implants ? 4
- III. 5) a) What is the principle of MPEAK and CIS strategies ? What information is transmitted through these strategies ? Which of these two strategies yield the best open set speech identification score and why ? 16
- OR

P.T.O.

- 6) a) Describe briefly the electronics and communication engineering principles in cochlear implants. Focus on speech acquisition, speech processing and removal of redundant information and power considerations. 10
- b) Is the digital signal processing of input speech in a digital hearing aid different from that in a cochlear implant ? If yes, then how are they different and why ? If no, then why are they not different ? 6
- IV. 7) a) How would you evaluate the speech production capabilities of children with cochlear implants ? Critically evaluate research findings on this issue. 12
- b) How would you teach suprasegmental features to a postlingual cochlear implantee ? 4
- OR
- 8) a) What accounts for the success of cochlear implants in some individuals and not in others ? Answer this from the perspective of neural plasticity. 8
- b) What research implications that results of assessments of benefits of cochlear implants have ? Why are longitudinal studies needed in outcome research? 8
- V. 9) a) What audiological tests guide you in determining candidacy for brainstem implants ? 8
- b) Can an individual be fitted with both cochlear implant and brainstem implant to stimulate auditory system at different levels ? Will this enhance auditory experience for individuals so fitted ? 8
- OR
- 10) a) What are the developments in the technology of cochlear implants, both in software and hardware, in the last 5 years ? 10
- b) How would you assess the impact of these developments in technology on management of hearing impaired children ? 6

AB 040

II Semester M.Sc. Examination, May/June 2006
(Semester Scheme)
Audiology
Physiological Assessment of the Auditory System

Time: 3 Hours

Max. Marks: 80

Instruction : Answer all questions.

- I. 1) a) Discuss the need for probe tone in immittance evaluation. 8
b) What factors determine the selection of the frequency of probe tone in immittance evaluation ? 8
OR
- 2) a) How do you find out middle ear resonance frequency ? 8
b) Middle ear resonance frequency is not a clear indicator of pathological conditions. Discuss. 8
- II. 3) Discuss the importance of non-acoustic reflexes in clinical audiology. 16
- 4) a) Discuss the usefulness of reflexometry in predicting hearing sensitivity. 8
b) Write a note on latency of acoustic reflex. 8
- III. 5) a) Discuss the factors that affect acoustic reflex measurement. 12
b) Highlight the importance of measurement of ear canal volume during tympanometry, 4
OR
- 6) a) "A" type tympanogram with absent acoustic reflexes does not lead to diagnosis of any condition. Discuss. 8
b) Discuss the importance of immittance audiometry in the assessment of disorders of the brainstem and facial nerve. 8
- IV. 7) a) Explain the physiological basis of OAE generation. 12
b) Discuss the significance of microphone characteristics in QAE recording. 4
OR

P.T.O.

- 8) a) Discuss the response parameters used in the interpretation of OAEs. 8
b) What are the similarities and differences between DPOAE and SFOAE ? 8
- V. 9) a) Discuss the influence of external and middle ear condition on OAE spectrum, 8
b) Discuss the subject related factors affecting OAEs. 8
- OR
- 10) How would you study efferent fibre distribution in cochlea using evoked OAE? 16