

II Semester M.Sc. Examination, May/June 2008

(Semester Scheme)

Audiology

Neurophysiology of Hearing

Time: 3 Hours

Max. Marks: 80

Instruction : Answer all questions.

- I. 1) Describe how intensity is coded in the auditory nerve. 16
OR
2) a) Write a brief note on the generation and properties of action potentials. 10
b) What are the clinical applications of measurement of action potentials ? 6
- II. 3) What is the role of brainstem in hearing ? 16
OR
4) Cochlea! nucleus complex is just a relay station in the auditory pathway. Discuss. 16
- III. 5) How does the auditory cortex help in analysing acoustic signals ? 16
OR
6) What is meant by neuroplasticity ? Discuss this with respect to the auditory cortex. 16
- IV. 7) Discuss the role of the efferent system in auditory perception. Cite evidence from recent research. 16
OR
8) a) Write a brief note on the protective function of the efferent system. 8
b) Describe the anatomy of medial olivary complex. 8
- V. 9) Compare and contrast neurotransmitters and neuromodulators to related hearing. 16
OR
10) What are neurotransmitters ? Discuss their properties and functions related to hearing. 6
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II Semester M.Sc. Examination, May/June 2008
(Semester Scheme)
Andiology
Psychophysics of Audition in Normals

Time : 3 Hours

Max. Marks: 80

Instruction : Answer *all* questions.

- I. 1) Low frequency sounds may completely 'obliterate' higher frequencies of considerable intensity, but higher frequencies do not 'obliterate' lower ones in masking. Comment. 16

OR

- 2) a) Describe a few experiments which have demonstrated the role of critical bandwidth in masking. 10

- b) What is non-simultaneous masking ? 6

- II. 3) a) Compare auditory adaptation and fatigue. 10

- b) Describe the stimulus parameters affecting adaptation. 6

- 4) Binaural processing of signals involves neural interaction of inputs from the two ears. Elaborate. 16

- III. 5) a) Differentiate between localization and lateralization. 4

- b) List and describe the factors that affect localization. 12

OR

- 6) Write in detail the localization of complex signals. 16

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IV. 7) a) What is masking level difference ? 4

b) Describe any two models to explain binaural hearing. 12

OR

8) a) Explain : Time intensity trading and monaural localization. 6

b) Discuss the clinical application of the concepts of binaural fusion. 10

V. 9) a) Describe the musical scales. 6

b) Discuss the factors affecting perception of music. 10

OR

10) How is perception of music different from perception of speech ? 16

II Semester M.Sc. (Aud.) Examination, May/June 2008
(Semester Scheme)

Audiology

Physiological Assessment of the Auditory System

Time : 3 Hours

Max. Marks : 80

Instruction : Answer ***all*** questions,

I. 1) Discuss the factors that affect tympanometry. 16

2) Describe the different methods used for estimation of resonant frequency of the middle ear 16

II. 3) Compare acoustic and non-acoustic reflexes and discuss factors that affect them. 16

OR

4) Write a note on temporal summation and sensitization of acoustic reflexes. Discuss the application of sensitization in clinical evaluation. 16

III. 5) Discuss the need for buying an immittance meter in an otolaryngological and neurologic set up. 16

OR

6) Draft a research proposal to study efficacy of multifrequency tympanometry in differential diagnosis of middle ear disorders.

IV. 7) Write an essay on wave fixed and place fixed OAEs. 16

OR

8) Enumerate evidences from literature to support that OHCs are the generators of OAEs. 16

V. 9) Describe the effect of contralateral noise on OAEs. What are its clinical applications ? 16

OR

10) Discuss the factors that affect measurement of DPOAEs. 16

II Semester M.Sc. (Audiology) Examination, May/June 2008
(Semester Scheme)
Implantable Devices for the Hearing Impaired

Time : 3 Hours

Max. Marks : 80

Instruction: Answer all questions.

- I. 1) a) What audiological tests can be administered to quantify the benefit from a middle ear implant ? 4
b) Write, in detail, the audioiological findings in an ear with middle ear implant. 12
- OR
- 2) a) In what ways do different commercially available middle ear implants differ? 12
b) How do you select the ear to be implanted with bone anchored hearing aid? 4
- II. 3) What evaluations are warranted to select a candidate for cochlear implant ? Discuss the audiological and non-audiological findings which indicate the need for cochlear implantation. 16
- OR
- 4) a) Describe the factors that determine benefits from a cochlear implant. 10
b) Write a note on hybrid cochlear implants. 6
- III. 5) a) How do the speech coding strategies in a cochlear implant differ ? 8
b) In what way do the strategies relate to the performance of a cochlear implantee ? 8
- OR
- 6) a) Perception of music and tonal languages is impaired in an individual using cochlear implant. Whether or not you agree with this statement. Justify. 12
b) What is the role of NRT in cochlear implant mapping ? 4

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- IV. 7) Prepare a handout on auditory-verbal therapy to educate a parent of a child who has been implanted. 16
- OR
- 8) Prepare a handout on care, troubleshooting and maintenance of a speech processor and other accessories. 16
- V. 9) a) How is the clinical fit of an auditory brain stem implant optimized ? 10
- b) What additional benefits accrue for individuals who use cochlear implant in one ear and hearing aid in the opposite ear over those who use only cochlear implant ? 6
- OR
- 10) a) Write a note on virtual channels in cochlear implants. What are the improvements in design considerations for cochlear implant electrodes ? 16
- OR
- a) What are the advantages of auditory brainstem implant ? 6
- b) Describe the techniques of optimizing hearing in cochlear implantees, 10