

## **Ph.D. ENTRANCE EXAM IN AUDIOLOGY**

### **UNIT 1**

#### **AUDITORY PHYSIOLOGY**

- External ear: Anatomy & Physiology, age related changes and its application
- Middle ear: Anatomy & Physiology, impedance concept and its application
- Cochlea: Anatomy and Physiology, theories of hearing
- Auditory nerve and Vestibular system: anatomy and physiology, Anatomy of other cranial nerve
- Central auditory pathway: anatomy and physiology of brainstem, subcortical and cortical auditory areas.

### **UNIT 2**

#### **BASICS IN AUDITORY PERCEPTION**

- Loudness: MAP and MAF, measurement and factors affecting
- Pitch: theories, measurement and factors affecting
- Temporal processing: measurement and factors affecting
- Object perception: auditory pattern perception
- Masking: Types, physiology and application

### **UNIT 3**

#### **PSYCHOPHYSICS OF AUDITION**

- Loudness perception in auditory disorders: adaptation, fatigue and recruitment
- Pitch perception in auditory disorders:
- Temporal perception auditory disorders
- Binaural Hearing: Localization and lateralization, physiology and factors affecting binaural hearing
- Perception of music: scales, notes and factors affecting music perception

### **UNIT 4**

#### **IMPLANTABLE DEVICES FOR INDIVIDUALS WITH HEARING IMPAIRMENT**

- Bone anchored hearing aids (BAHA) and middle ear implants: instrumentation, candidacy and benefit
- Cochlear implants: design and features, candidacy, factors affecting benefit
- Psychophysics of cochlear implants
- Habilitation of individuals with cochlear implants: adults and children
- Brainstem implant and mid brain implants: design and features, candidacy, factors affecting benefit

## **UNIT 5**

### **PHYSIOLOGICAL ASSESSMENT OF THE AUDITORY SYSTEM**

- Tympanometry and reflexometry: Principle, instrumentation, procedure
- Application of Immitance: tympanometry and reflexometry
- Non Audiological tests: MRI, fMRI, MEG, X-Ray, CT, PET, SPECT, lab tests,.
- Oto acoustic emissions – classification, generation and instrumentation
- Oto acoustic emissions – Clinical application

## **UNIT 6**

### **SPEECH PERCEPTION**

- Theories of speech perception:
- Perception of vowels and consonants: cues for perception, relation between production and perception cues, role of co articulation
- Dichotic listening: Factors affecting and application
- Memory and speech perception
- Infant speech perception

## **UNIT 7**

### **ELECTROPHYSIOLOGICAL ASSESSMENT OF THE AUDITORY SYSTEM**

- Classification, instrumentation, methods of analysis & generators of auditory evoked potentials:
- Early and middle latency potentials: factors affecting recording and interpretation; application
- Late latency potentials: factors affecting recording and interpretation; application
- Steady state evoked potentials: factors affecting recording and interpretation; application
- Vestibular assessment: factors affecting recording and interpretation; application

## **UNIT 8**

### **REHABILITATIVE AUDIOLOGY**

- Digital technology in hearing instruments: design and features, electro acoustic performance
- Hearing device selection procedures: subjective and objective techniques
- Assessment and Management of individuals with special listening needs: Individuals with deaf blindness, MR, autism, cerebral palsy, LD, multiple disability
- Tinnitus and Hyperacusis: Theories, assessment and management
- Audiology in practice: National and international standards, acts and legislations, medico legal aspects

## **UNIT 9**

### **CENTRAL AUDITORY PROCESSING DISORDERS**

- Theoretical basis and classification of (C)APD
- Behavioral tests in the assessment of (C)APD: Screening and diagnostic tests for children and adults
- Objective test in the assessment of (C)APD: Screening and diagnostic tests for children and adults
- Management of (C)APD: Deficit based strategies and management
- Factors affecting assessment and management of (C)APD

## **UNIT 10**

### **SPEECH PERCEPTION IN CLINICAL POPULATION**

- Perception of vowels, consonants, coarticulation and suprasegmentals in individuals with different degrees, types and audiogram configuration
  - Perception of speech through other modalities: segmental and supra segmental perception through visual and tactile modalities
  - Speech perception in cochlear implantees: Factors affecting perception
  - Speech intelligibility: subjective and objective methods and factors influencing
  - Speech perception in adverse listening condition: affect of noise reverberation
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