ROYAL CIVIL SERVICE COMMISSION
BHUTAN CIVIL SERVICE EXAMINATION (BCSE) 2020
EXAMINATION CATEGORY: TECHNICAL

PAPER III: SUBJECT SPECIALISATION PAPER FOR AUDIOLOGY AND SPEECH LANGUAGE PATHOLOGY

Date : February 27, 2021
Total Marks : 100
Writing Time : 150 minutes (2.5 hours)
Reading Time : 15 minutes (prior to writing time)

GENERAL INSTRUCTIONS:

1. Write your Registration Number clearly and correctly on the Answer Booklet.
2. The first 15 minutes is to check the number of pages of the Question Paper, printing errors, clarify doubts and to read the instructions. You are NOT permitted to write during this time.
3. This paper consists of **TWO SECTIONS**, namely SECTION A & SECTION B:
   - **SECTION A** has two parts: Part I - 30 Multiple Choice Questions
     Part II - 4 Short Answer Questions

     All questions under SECTION A are COMPULSORY.
   - **SECTION B** consists of two Case Studies. Choose only **ONE** case study and answer the questions of your choice.
4. All answers should be written on the Answer Booklet provided to you. Candidates are not allowed to write anything on the question paper. If required, ask for additional Answer Booklet.
5. All answers should be written with correct numbering of Section, Part and Question Number in the Answer Booklet provided to you. Note that any answer written without indicating the Section, Part and Question Number will NOT be evaluated and no marks will be awarded.
6. Begin each Section and Part on a fresh page of the Answer Booklet.
7. You are not permitted to tear off any sheet(s) of the Answer Booklet as well as the Question Paper.
8. Use of any other paper including paper for rough work is not permitted.
9. **You must hand over the Answer Booklet to the Invigilator before leaving the examination hall.**
10. This paper has **9 printed pages** including this instruction page.

GOOD LUCK!

SECTION A

PART I: Multiple Choice Questions [30 marks]

Choose the correct answer and write down the letter of your chosen answer in the Answer Booklet against the question number e.g. 31 (d). Each question carries ONE mark. Any double writing, smudgy answers or writing more than one choice shall not be evaluated.

1. An eight-year-old male child with anotia with very limited communication skills has come for assessment. A moderate degree of conductive hearing loss is also seen on Audiological test battery. Which one of the following will you recommend as assistive device?
   a) Bone conduction hearing aid
   b) Body level hearing aid
   c) Behind the ear hearing aids
   d) Communication board

2. Which one of the following describes best for the sound [θ]?
   a) Affricate consonant
   b) Fricative
   c) Dental fricative
   d) Voiced consonant

3. In Brodmann classification, Area 44 and 45 make up
   a) Wernicke's area
   b) Broca's area
   c) Primary and secondary auditory cortex
   d) None of the above

4. Primary native skills required to acquire speech and language is known as _____ skills.
   a) Semantics
   b) Syntax
   c) Pragmatics
   d) Prelinguistics

5. The space between membranous and bony labyrinth is filled with
   a) Perilymph
   b) Endolymph
   c) CSF
   d) None of the above

6. Masking in pure tone audiometry test is done in order to
   a) avoid cross hearing.
   b) avoid cross over.
   c) elicit real hearing threshold.
   d) avoid background noise.

7. Sound energy is converted to electrical impulses at
   a) Footplate of stapes
   b) Fluid in the cochlea
   c) Hair cells in the cochlea
   d) Auditory cortex

8. In otosclerosis, hearing loss audiogram shows bone conduction elevation at
   a) 1 KHz
   b) 2 KHz
   c) 3 KHz
   d) 4 KHz

9. All of the following are true with regard to tympanic membrane EXCEPT
   a) Its 1.0 mm thick
   b) Its 1.5 mm thick
   c) Its 8 to 9 mm wide
   d) Its 9 to 10 mm tall

10. Pinna achieves adult shape
    a) by the 20^{th} week
    b) by the 18^{th} week
    c) by the 22^{nd} week
    d) None of the above

11. 'Ad' type of tympanogram is always associated with
    a) Ossicles fixation
    b) Fluid in the cochlea
    c) Normal tympanic membrane
    d) Flaccid tympanic membrane

12. Primary Auditory cortex is represented by Brodmann classification numbered
    a) 41, 42 in temporal lobe
    b) 22, 21 in occipital lobe
    c) 22, 23 in frontal lobe
    d) None of the above

13. Apex Part of cochlea is responsible for hearing sound at
    a) Low frequencies
    b) High frequencies
    c) Mid frequencies
    d) All of the above

14. At 20°C in the air and at the sea level, the sound travels at a speed of
    a) 344m/sec
    b) 340m/sec
    c) 324m/sec
    d) 354m/sec

15. A 7-year-old child is directly brought to you with complaint of not speaking age adequately. You observe signs of ASD too. What will be your provisional diagnosis?
    a) Inadequate expressive skills.
    b) Delayed speech and language.
    c) Delayed speech and language consequent to ASD.
    d) Inadequate expressive skills consequent to ADHD.

16. The length of the external auditory canal is
    a) 18mm
    b) 20mm
    c) 24mm
    d) 28mm

17. Oval window lies at the _____ wall of the vestibule.
    a) medial
    b) posterior
    c) lateral
    d) anterior

18. Which parameter in assessment of BERA is used for diagnosis of unilateral acoustic neuroma?
    a) Interaural latency of 5^{th} peak
    b) Interaural latency of 3^{rd} peak
    c) Interaural latency of 1^{st} peak
    d) None of the above

19. Natural resonance of External Auditory Canal is
    a) 500Hz
    b) 1800 Hz
    c) 3000 Hz
    d) 4000Hz

20. A normal tympanic membrane appears to be
    a) Light pinkish
    b) Opaque yellow
    c) Translucent pale gray
    d) None of the above

21. Noise induced hearing loss is diagnosed when audiogram shows
    a) 2 KHz notch
    b) KHz notch
    c) 6 KHz notch
    d) None of the above

22. Choose the odd one out with respect to cerebral palsy:
    a) Ataxic
    b) Spastic
    c) Athetoid
    d) Dystonic

23. A child born with bilateral Atresia is brought to the Audiologist for consultation at the age of 6 months. Radiological evidence indicates the probable presence of middle ear and cochlea. BC ABR has obtained at near normal levels. Which one of the following move will be the best for the child at this time?
    a) Defer treatment until age of 6 yrs so that external and middle ear growth is completed.
    b) Suggest surgery at one ear so that normal air conduction in hearing mechanism is established.
    c) Recommend an implanted bone anchored hearing aid.
    d) Investigate the use of bone conduction hearing aid until the other test results can be confirmed and surgery initiated later when the child is old enough for the surgery.

24. The accuracy of hearing screening test in correctly identifying those individuals who actually have hearing impairment is referred to as hearing test
    a) Reliability
    b) Validity
    c) Sensitivity
    d) Specificity

25. Which of the following will you choose for amplification for a person with bilateral moderately severe conductive hearing loss and chronic drainage from both the ears?
    a) Body worn hearing aids
    b) Behind the ear with vented ear moulds
    c) Bone conduction hearing aid
    d) CI

26. Phenomenon known as paracusis of willis is
    a) an ability to hear better in noise.
    b) an occurrence in conductive hearing loss.
    c) a low speech recognition threshold in presence of noise.
    d) Both (a) and (b)

27. The colour of the normal vocal cords is
    a) Pink
    b) Red
    c) Pearly white
    d) Grey

28. The cranial nerve concerned with vocal cord movement is
    a) V cranial nerve
    b) VII cranial nerve
    c) VIII cranial nerve
    d) X cranial nerve

29. All of the information below regarding sensory hair cells of the vestibular organs do not hold true EXCEPT
    a) The kinocilium from its surface is thicker and is located on the edge of the cell.
    b) Displacement of otolithic membrane stimulates the hair cells where sound transduction takes place.
    c) It has two types called inner and outer hair cells.
    d) They are independent cells and do not contain supporting cells.

30. Choose the odd one from the following:
    a) REELS
    b) SECS
    c) AAC
    d) SSI

PART II – Short Answer Questions [20 marks]

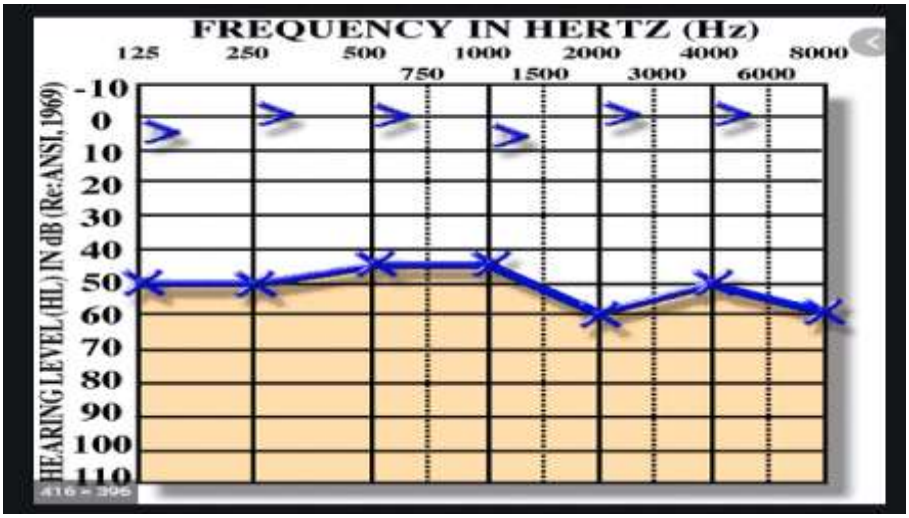
This part has 4 Short Answer Questions. Answer ALL the questions. Each question carries 5 marks.

1. Briefly explain transformer action of the middle ear during the mechanical conduction of the sound.

2. Discuss the sub-systems involved during speech production.

3. How will you describe consonants with respect to place and manner of production?

4. Describe the following Audiogram. What could be the possible cause? What can be possible result from tympanometry and OAE?



SECTION B: CASE STUDY [50 marks]

Choose either CASE I or CASE II from this section. Each case study carries 50 marks. Mark for each sub-question is indicated in the brackets.

CASE I

You have been appointed as the Audiologist/Speech language pathologist of JDWNR Hospital. During your tenure, you come across the following cases. How will you manage each of them?

1. A 47-year-old male had been admitted to ER after severe headache and sudden numbness in the right leg. Imaging results showed intracerebral hemorrhage at the inferior frontal gyrus of the left hemisphere. Loss of speech output had been noticed and larynx was found to move normally. He has been occasionally smoking with regular intake of alcohol. He is then referred to you for speech therapy.
    a) What is your final diagnosis of his communication status? (1 mark)
    b) What is aphasia? (2 marks
    c) Briefly describe its types. (3 marks)
    d) Explain how you will rehabilitate his speech using appropriate therapy technique. (4 marks)

2. A 15-year-old boy has come with the complaint of not being able to express his thoughts as he wishes it to be due to the difficulty in getting a fluent speech. He has no other associated medical issues. On physical examination, he was fit and healthy, and on normal conversation he exhibited significant struggle with word repetitions and initial hard contact. His hearing was found normal.
    a) Discuss the characteristics of possible speech problem in this case and its causes? (5 marks)
    b) Which test battery will you administer? (2 marks)
    c) Suggest your opinion and management for such cases. (3 marks)

3. A 14-year-old girl is referred to you for review of her hearing aid and related services. She was aided 4 years ago. She is now having difficulty of hearing in the presence of background noise, and frequently cannot hear the loud conversations. Her school teacher and parents complains that lately her speech articulation has dramatically distorted.

    On free field testing, she can hear a loud voice from distance of 6 inches. Tuning fork tests are not heard. The pure tone average of the air conduction thresholds on the right ear is 100dB HL, and 105dB HL on the left ear. The bone conduction thresholds in both sides are beyond the limits of the audiometric threshold.
    a) What type of hearing loss does the case describe? Mention its type and degree of loss. (2 marks)
    b) If the hearing aids are not found effective, what are the next possible suggestions would you give? (2 marks)
    c) Discuss some of the possible causes for such condition? (3 marks)
    d) Discuss the management of this patient and rehabilitation. (3 marks)

4. A 36-month-old female child has been brought to you by her mother. She says that her child is not responding to any of the family member conversations and commands. The child has not developed any verbal mode of speech. The baby has no ear infection or any related hearing loss and no congenital anomalies.
    a) Discuss some of the major possible causes of such condition. (3 marks)
    b) Describe in brief the communication milestones till the age of 4 years (4 marks)
    c) What will be management approach in this case? (3 marks)

5. A 28-year-old male was being escorted by police for the hearing assessment. They were being directed from Audiology Unit from the forensic department to be proceeded as medico legal case. He complains of assault and battered by his neighbour. On otoscopic examination, external auditory canal and tympanic membrane are found to be physically intact and normal. He was found to be responding to conversational speech occasionally, especially when conversation content pleases him.
    a) What type of hearing loss do you suspect in this case? (1 mark)
    b) Describe audiological test that you will administer and describe possible result from each test while administering to this case. (6 marks)
    c) Briefly note down few other causes for such hearing loss. (3 marks)

CASE II

You have been appointed as the speech and language pathologist/Audiologist at Mongar ERRH. During your clinical practice, you come across some challenging situations. How will you manage each of them?

1. A 34-year-old lady has been referred for audiological consultation by the general practitioner. The chief complain is not being able to tolerate to the loud sounds such as traffic honks which other people don't have problem with. This aggravates her psychosocial imbalance.
    a) Describe the situation briefly. (2 marks)
    b) Mention the audiological test battery that you will administer and what will be the possible results? (5 marks)
    c) What are the strategies that would you recommend for this patient? (3 marks)

2. A 7-year-old male child has been brought to you with the complaint of not speaking clearly and fluently due to cerebral palsy. He is currently undergoing physiotherapy and occupational therapy. He can speak with two words combination to express his needs. He is found to understand the conversations and reacts to it emotionally. However, he has no associated issues like feeding difficulties.
    a) What are the types of speech characteristics that you will possibly see in this case? (3 marks)
    b) What are the different types of cerebral palsy? (4 marks)
    c) Mention some of the techniques that you will use in the management? (3 marks)

3. A 14-day-old baby boy has been reffered to you by NICU for the hearing assessment. The baby has no ear infection and no congenital anomalies.
    a) Why do you think NICU has referred the baby to the Audiology unit? Mention some of the high risk registers to the babies. (2 marks)
    b) What is the standard form of assessment approach that you will start with? (1 mark)
    c) If the screening test shows suggestive hearing loss, what are your future confirmatory tests? (1 mark)
    d) Briefly discuss the results of the following tests considering that the child has severe to profound SNHL (6 marks)

4. A 11-year-old male child has been brought to you with the complaint of restless behavior along with attention issue. The educational history of child reveals repeating three times in the 1st standard. On careful assessment of the child, you notice that he has a mild autistic feature with intellectually challenged.
    a) Mention few types of learning difficulties that you will find in this child with examples. (3 marks)
    b) Mention some of the characteristic behavior that you will possibly find in this child with reference to mild autism. (2 marks)
    c) Briefly mention some of the managements that you will plan to address and help overcome with the challenges. (5 marks)

5. A 9-year-old female student has been brought to the speech therapy with the complaint of speech articulation with occasional otorrhea. On examination, you find that child has repaired cleft of palate and lips. The otoscopic examination showed perforated TM. When you make the child to speak, you find it necessary for repetitions for speech to be intelligible.
    a) Who will be in multidisciplinary team for management of otorrhea?
    b) Mention few causes of cleft of lip and palate. (2 marks)
    c) How will you further assess the articulation of this child? (2 marks)
    d) What are the possible articulation errors you will find in this case? Give examples for each. (4 marks)
    e) Mention few therapy techniques to help this child. (2 marks)

TASHI DELEK