ROYAL CIVIL SERVICE COMMISSION
BHUTAN CIVIL SERVICE EXAMINATION (BCSE) 2021
EXAMINATION CATEGORY: TECHNICAL

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

Date	: October 31, 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 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. The unclear speech that a person manifest when he knows what he wants to say, but correct muscle coordination is being hampered due to incorrect stimulus from the brain even though the speech muscles functions normal is called
   a) Hoarseness of voice
   b) Apraxia of speech
   c) Phonological disorder
   d) Lisping

2. Non-verbal involuntary or semi voluntary actions usually seen along with stuttering is known as
   a) Primary behaviors
   b) Secondary behaviors
   c) Tertiary behaviors
   d) None of the above

3. Lisping is common type of speech problems and the most common lisp seen is
   a) Frontal
   b) Lateral
   c) Palatal
   d) Dental

4. Voice quality variation caused due to involuntary spasm in the muscles of larynx is commonly diagnosed as
   a) Shaky voice
   b) Jerky voice
   c) Spasmodic dysphonia
   d) Aphonia

5. Which part of brain doesn't help Wernicke's area in wholesome reception of language?
   a) Angular gyrus
   b) Insular cortex
   c) Basal ganglia
   d) Medulla oblongata

6. The motor functions of the tongue is facilitated mainly by
   a) Hypoglossal nerve
   b) Phrenic nerve
   c) Pharyngeal nerve
   d) Trigeminal nerve

7. Which statement is NOT TRUE about the stuttering?
   a) Males are more likely to have the problem.
   b) The problem often runs in the family.
   c) Sometime the cause can be neurological.
   d) None of the above

8. Breathy and nasal speech is usually found in
   a) flaccid dysarthria.
   b) hyperkinetic dysarthria.
   c) hypokinetic dysarthria.
   d) spastic dysarthria.

9. Which one of the following doesn't hold true about Brodmann's area 22?
   a) It is found in the left inferior frontal gyrus.
   b) It is located in the left posterior superior temporal gyrus.
   c) It helps with generation and understanding of individual words.
   d) It affects person's fluency of speech is mostly intact.

10. Congenital is
    a) absence of pinna.
    b) all auditory disorders present at birth.
    c) more of microtia and anotia.
    d) exogenous auditory disorders.

11. Conductive loss and type B tympanometry with abnormally small ear canal volume on the effected side can be seen
    a) if a client has impacted cerumen on one side.
    b) congenital absence of EAC.
    c) ossicular chain discontinuation.
    d) intact tympanogram after myringotomy.

12. _____ nerves function as taste receptors to posterior $1/3^{rd}$ of the tongue, elevation of palate and larynx and helps in swallowing.
    a) Glossopharyngeal
    b) Vagus
    c) Hypoglossal
    d) Trigeminal

13. Larynx has _____ number of pair cartilages.
    a) two
    b) three
    c) four
    d) None of the above

14. Lenticular nucleus or lentiform body is composed of
    a) globus pallidus and putamen.
    b) putamen and caudate nucleus.
    c) thalamus and caudate nucleus.
    d) putamen and thalamus.

15. The /n/ in snow is only partially voiced in the speech of most people because of _____.
    a) vocal fatigue
    b) the /s/ is voiceless
    c) the following vowel is voiceless
    d) misarticulations

16. One of the important prerequisites of the VRA includes
    a) development of head turn responses.
    b) development of vocalization.
    c) articulatory responses.
    d) without CSOM.

17. The softest level that a person can detect a pure tone is known as
    a) Reflex
    b) Threshold
    c) Frequency matched
    d) Absolute decibel

18. During aeration of an ear canal, antibiotic eardrops are used to treat
    a) chronic external otitis.
    b) are indicated by A type tympanogram
    c) noise induced hearing loss.
    d) ETD

19. Linear amplification is also described as _____ gain.
    a) high
    b) flexible
    c) constant
    d) saturating

20. The acoupedic program insists on developing oral language through the use of
    a) Auditory sense
    b) Multi-sensory input
    c) Tactile sense
    d) Auditory and visual sense

21. The dB scale belongs to the _____ scale of measurement.
    a) ratio
    b) ordinal
    c) interval
    d) nominal

22. The human cochlea acquires normal adult functions after _____ years.
    a) 16
    b) 18
    c) 20
    d) 23

23. During the development of the inner ear, the first thing to develop is
    a) Semicircular canals
    b) Cochlear duct
    c) Sensori cells in the cochlea
    d) Saccule

24. Which of the following would most likely cause a patient to speak almost entirely in neologisms?
    a) Damage to cranial nerves
    b) Severe wernickes aphasia
    c) Spatic dysarthria
    d) Stuttering

25. Stenosis is usually referred to
    a) Absence of pinna
    b) Congenital absence of EAC
    c) Narrowing of EAC
    d) CSOM

26. _____ is used for diagnosing various infections and hemorrhages of the CNS that are not observable in CT scan.
    a) EEG
    b) Doppler test
    c) Lumber puncture
    d) ECG

27. Temporal auditory summation is a _____ phenomenon.
    a) cochlear
    b) conductive
    c) neural
    d) sensory

28. What happens when the stapedius muscle contracts?
    a) The impedance at the tympanic membrane decreases.
    b) The impedance at the tympanic membrane increases.
    c) The admittance and the impedance at the tympanic membrane increases.
    d) The admittance and the impedance at the tympanic membrane decreases.

29. Which of the following coupler is used during the hearing aid analysis?
    a) 1.2
    b) 2.4
    c) 2.0
    d) 2.2

30. Occlusion effect is found to be absent in the cases with _____ loss.
    a) conductive
    b) unilateral
    c) functional
    d) None of the above

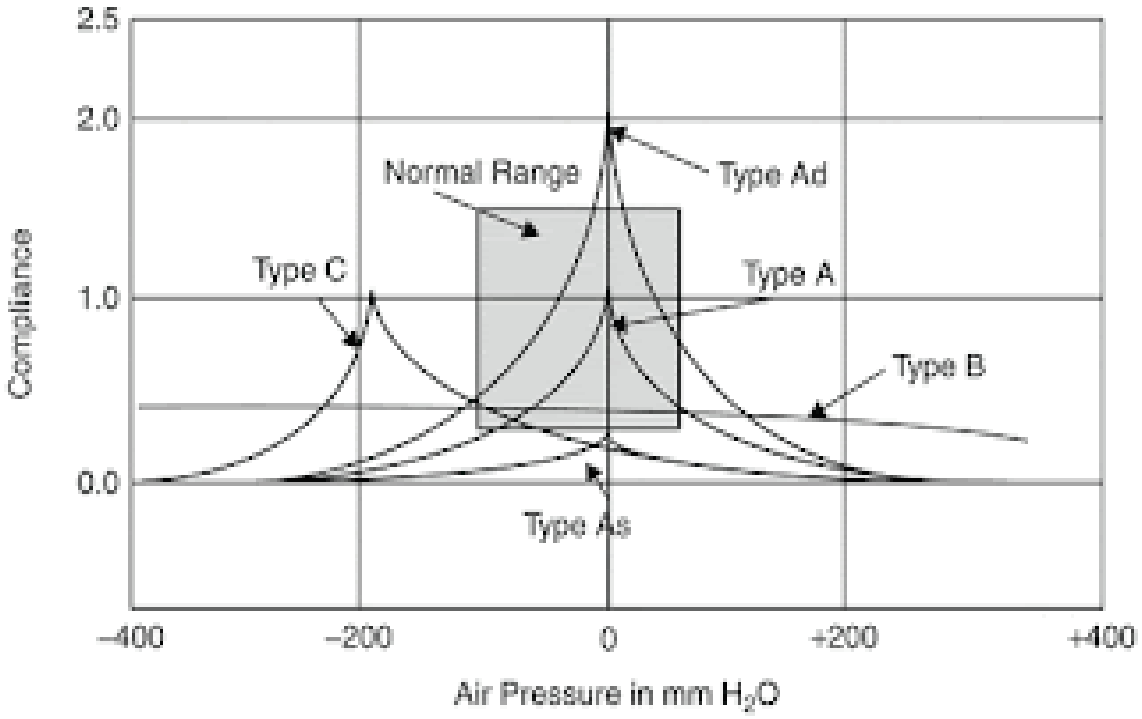
PART II – Short Answer Questions [20 marks]

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

1. How will you describe eustachian tube dysfunction? What test will you administer to confirm it and how can you manage at your level?

2. What is the main difference between vowel and consonants? Elaborate consonants with respect to place and manner of articulation with examples where necessary.

3. Describe and explain middle ear conditions using the graph below.



4. What is speech? Briefly discuss the sub-systems involved during speech production.

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

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

1. A 28-year-old female singer has developed gradual increase of hoarseness in her voice over the years. She has been habitually smoking 10 cigarettes on average for the past few years. She has no complaint on physical pain but has developed a dry, allergic type of cough since two weeks which occasionally discomforts her. Examination reveals normal movement of vocal cords with tiny nodule growth. She is then referred to you for speech therapy.

   a) What are the possible causes of hoarseness of voice? (3 marks)

   b) How will you further assess the voice and laryngeal function at speech therapy setting? (3 marks)

   c) What are the therapy managements that you will enroll to this patient? (4 marks)

2. A 44-years-old man working at the road division has come with the complaint of continuous ringing sound in his ears with occasional difficulty hearing others especially in crowd. On Otoscopic examination, his ears were normal. On free field testing, he could hear a conversational voice at 2 feet. Using a 512 Hz tuning fork, Rinne's test was positive bilaterally and Weber's test centralized.

   a) Discuss the possible type of hearing loss in this case and its causes? (2 marks)

   b) What is tinnitus? (1 marks)

   c) What audiological tests would you perform and why? (4 marks)

   d) Note and briefly explain management that you will suggest for such cases. (3 marks)

3. A 36-month-old baby boy has been brought to you by her mother for consultation of communication status. She observed that her child is responding to simple commands like "come here", "put in the dustbin" but has not communicated using voice. The baby has no ear infection and congenital anomalies.

   a) What is being delayed here? (1 mark)

   b) Discuss some of the major possible causes of such conditions. (3 marks)

   c) Elaborate communication milestones till his age. (4 marks)

   d) What will be management approach in this case? (2 marks)

4. A 53-years-old laryngectomee has visited the ENT specialist after undergoing total laryngectomy for a stage III carcinoma of the larynx. He has recovered well, but faced with the dilemma of communicating with others. ENT specialist has referred the case to you for addressing communication management. In relation to this answer the following questions:

   a) Describe the mechanism of phonation and voice production by the larynx. (3 marks)

   b) What happens after total laryngectomy? (1 mark)

   c) Discuss vocal rehabilitation after total laryngectomy and methods of communication in laryngectomized patients. (6 marks)

5. A student has been brought to you with a complaint of not speaking fluently especially when the teacher demands the answer in Dzongkha (National language). When the child is assessed using his mother tongue, he was found to have occasional repetitions of sone words. On the other hand, when the child was assessed in Dzongkha, child was found to fidget fingers with numerous disfluencies.

   a) Describe this condition with few possible causes. (3 marks)

   b) What are the types of speech characteristics that you will possibly see in this case other than repetitions and sound fear? (3 marks)

   c) What are some other secondary behaviors that you will expect in such cases? (1 mark)

   d) Mention some of the techniques that you will use in the management? (3 marks)

CASE II

1. Neonatologist has referred 1-month-old baby boy for the hearing assessment to you after graduating from NICU. The baby has no ear infection and congenital anomalies.

   a) Why do you think this child has been referred to Audiology unit? Mention some of the high-risk registers for the babies. (2 marks)

   b) What test battery will you 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 tests considering that the child has severe SNHL. (6 marks)

2. 11-years-old male child has been brought to you with the complaint of attentive listening issue. Sometimes caregivers mistake him for hard of hearing. Educational history of child reveals repeating three times in 1st standard. However, on your careful assessment of the child, you notice that child has mild autistic feature.

   a) Mention learning difficulties that you will find in this child with examples. (3 marks)

   b) What is the typical behavior that made you diagnose this child as mild autistic? (2 marks)

   c) Briefly mention some of the management that you can plan to address and help overcome with the challenge. (5 marks)

3. A 38-year-old male has 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)

4. A 10-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 presence of background noise and frequently cannot hear the loud conversations. Her school teacher and parents complained that her speech articulation has dramatically distorted lately.

   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 and degree of hearing loss does the case describe? (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)

5. A 19-year-old male was escorted by police for the hearing assessment. They were sent to Audiology Unit from the forensic department to be proceeded as medico legal case. He complains of assault and battery by his neighbour. On otoscopic examination, external auditory canal and tympanic membrane are found to be physically intact and normal. His response to conversational speech was not consistent.

   a) What type of hearing loss do you suspect in this case? (1 mark)

   b) Describe audiological test that you will administer and the 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)

TASHI DELEK