ROYAL CIVIL SERVICE COMMISSION

BHUTAN CIVIL SERVICE EXAMINATION (BCSE) 2010

EXAMINATION CATEGORY: TECHNICAL

PAPER III: SUBJECT SPECIALIZATION PAPER for AUDIOLOGY & SPEECH LANGUAGE PATHOLOGY

Date	**: 24th November 2010**
Total Marks	**: 100**
Examination Time	**: 2.5 Hours**
Reading Time	**: 15 Minutes**

INSTRUCTIONS

1. Write your Roll Number clearly on the answer booklet in the space provided.

2. The first 15 minutes is being provided to check the number of pages, printing errors, clarify doubts and to read the instructions. You are **NOT PERMITTED TO WRITE** during this time.

3. Use either **Blue** or **Black** ink pen or ball point pen for the written part and **Pencils** for the sketches and drawings.

4. All answers should be written on the Answer Booklet provided. Candidates are not allowed to write anything on the question paper.

5. This Question Booklet consists of **9 pages** including this page. It is divided into two sections – namely SECTION A and SECTION B.

6. **SECTION A** consists of two parts. **Part I and Part II.**

   Part I consists of 30 multiple choice questions carrying one (1) mark each and is **compulsory**. The answer of your choice should be clearly written **in whole** along with the question and option number on your answer booklet.

   Part II consists of four (4) short answer questions of five (5) marks each and all questions are compulsory.

7. **SECTION B** consists of two **Case Studies**. Choose only **ONE** case study and answer the questions under your choice. Each case study carries fifty (50) marks in total.

SECTION A

Part I (Multiple choice questions/ all compulsory). 30 questions of 1 mark each = 30 marks.

1) The colour of the normal tympanic membrane is:
    a) Pink.
    b) Red.
    c) Blue.
    d) Pearly grey.

2) The length of the external auditory canal is:
    a) 24-26mm.
    b) 24-26cm.
    c) 24-26m.
    d) none of the above.

3) The external auditory canal is divided into two parts:
    a) Outer 2/3 cartilage and inner 1/3 bony.
    b) Outer 1/3 cartilage and inner 2/3 bony.
    c) Outer 2/3 bony and inner 1/3 cartilage.
    d) Outer 1/3 bony and inner 2/3 cartilage.

4) The tympanic membrane is made up of:
    a) 2 layers.
    b) 3 layers.
    c) 4 layers.
    d) 5 layers.

5) The Eustachian tube connects the nasopharynx with:
    a) External auditory canal.
    b) Middle ear.
    c) Inner ear.
    d) None of the above.

6) Foot plate of the stapes covers the:
    a) Round window.
    b) Promontory.
    c) Oval window.
    d) Cochlear aqueduct.

7) Cochlea has:
    a) 2 turns.
    b) 2 and ¾ turns.
    c) 2 and ½ turns.
    d) 3 turns.
8) Stapedius muscle is attached to:

a) Malleus.
b) Incus.
c) Stapes.
d) Promontory.

9) Wax is secreted from:
   a) Cartilaginous external auditory canal.
   b) Bony external auditory canal.
   c) Pinna.
   d) All of the above.

10) The normal middle ear cavity is filled with:
   a) Air.
   b) Fluid.
   c) Pus.
   d) Wax.

11) Non organic hearing loss is seen in:
   a) Acute suppurative otitis media.
   b) Chronic suppurative otitis media.
   c) Sensorineural hearing loss.
   d) Malingering.

12) Presbyacusis causes:
   a) Conductive hearing loss.
   b) Mixed hearing loss.
   c) Non organic hearing loss.
   d) Sensorineural hearing loss.

13) The vestibulocochlear nerve that helps in hearing and balance is:
   a) VIII cranial nerve.
   b) V cranial nerve.
   c) VII cranial nerve.
   d) IX cranial nerve.

14) Otitis media with effusion in:
   a) Otherwise called secretory otitis media.
   b) Occurs commonly in school going children.
   c) Causes conductive hearing loss.
   d) All of the above.
   e) Only a).

15) An audiogram of a person with conductive hearing loss shows:
   a) Air conduction greater than bone conduction.

b) Bone conduction greater than air conduction with air-bone gap.
c) No gap between air and bone conduction.
d) None of the above.

16) In conductive hearing loss, the pathology lies in:
a) Pinna only.
b) Pinna and external auditory canal.
c) Inner ear.
d) Pinna, external auditory canal and middle ear.

17) In sensorinural hearing loss, the pathology lies in:
a) Middle ear.
b) Eustachian tube.
c) Cochlea only.
d) Cochlea, vestibulocochlear nerve and central auditory pathways.

18) The functions of the larynx are:
a) Respiration.
b) Phonation.
c) Protection of lower airways.
d) All of the above.

19) Safety muscle of the larynx is:
a) Vocalis.
b) Posterior cricoarytenoid.
c) Thyroarytenoid.
d) Cricothyroid.

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

21) The true vocal cords:
a) Lie above the false cords.
b) Lie below the false cords.
c) Lie in between the false cords.
d) None of the above.

22) Ventricle or sinus of the larynx is a space:
a) In front of the epiglottis.
b) Behind the aryepiglottic folds.
c) Between the true and false vocal cords.
d) None of the above.

23) The cranial nerve concerned with vocal cord movements is:
    a) V cranial nerve.
    b) VII cranial nerve.
    c) VIII cranial nerve.
    d) X cranial nerve.

24) In bilateral recurrent laryngeal nerve paralysis:
    a) The vocal cords lie in the median or paramedian position.
    b) May present with acute stridor requiring tracheostomy.
    c) Generally no treatment is required.
    d) Both a and c.
    e) Both a and b.

25) Vocal cord nodules are also called:
    a) Singer's nodules.
    b) Teacher's nodules.
    c) Screamer's nodules.
    d) All of the above.
    e) Only a.

26) What would you advice a teacher presenting with acute laryngitis and hoarseness of voice?
    a) Whisper.
    b) Use a microphone to talk.
    c) Absolute voice rest.
    d) None of the above.

27) Puberphonia is:
    a) Mutational falsetto voice.
    b) Seen in both males and females.
    c) Poor prognosis.
    d) Cannot be treated with speech therapy.

28) Functional aphonia is:
    a) Where the larynx is defective from birth.
    b) There is no treatment available.
    c) Also called hysterical aphonia, seen in young females and resolves spontaneously.
    d) Needs immediate referral for surgery.

29) The tuning fork test used to detect non-organic hearing loss is:
    a) Rinne's test.
    b) Weber's test.
    c) ABC or absolute bone conduction test.

d) Stenger's test.

30) In the process/mechanism of conduction of sound, the function of the middle ear is called:
   a) Potential matching mechanism.
   b) Electrical matching mechanism.
   c) Impedance matching mechanism.
   d) None of the above.

Part II (Short answer questions/ all are compulsory/ 5 marks each/ total 20 marks).

1) What is non organic hearing loss? Discuss its clinicoaetiology, diagnosis and management in brief.

2) What is puberphonia? How will you diagnose, manage and counsel a patient with puberphonia?

3) Discuss in brief, the salient differences between conductive and sensorineural hearing loss and the role of the audiologist in both conditions.

4) Discuss vocal rehabilitation after total laryngectomy and methods of communication in laryngectomised patients in brief.

SECTION B - CASE STUDIES.

Given below are two case studies. Read the cases carefully, and answer the questions after each case. YOU ARE TO ATTEMPT ONE CASE STUDY ONLY. (50 marks)

CASE I.

You have been appointed as the Audiologist of Mongar ERR Hospital. During your tenure, you come across the following cases. How will you manage each of them?

A) A five year old boy has been brought to the ENT OPD by his mother, concerned that he cannot hear properly. After careful evaluation, the ENT specialist diagnoses the child to have otitis media with effusion.
What is otitis media with effusion? Discuss the different causes of deafness in a child. Briefly describe the audiometric tests that you would perform on this child and what would be your findings? (10 marks)

B) A 57 year old army personnel has come with the complaint of a continuous ringing sound in his left ear. He also has difficulty hearing others in the presence of background noise. On physical examination, he was fit and healthy, and on otoscopic examination, his ears were normal.
On free field testing, he could hear a conversational voice at 2 feet bilaterally. Using a 512 Hz tuning fork, Rinne's test was positive bilaterally and Weber's test central.
Discuss the characteristics of sensorineural hearing loss. What are it's causes? What is tinnitus? What audiological tests would you perform and why?
Assuming a bilateral, symmetrical, high frequency sensorineural hearing loss of 50 dB HL across speech frequencies, how would you manage both the hearing loss and tinnitus? (10 marks)

C) A 27 year old lady is referred to you for review of her hearing aid and assessment of her hearing. She had been wearing hearing aids for last 5 years since she developed meningococcal meningitis and was treated for that disease. She is now having difficulty hearing in the presence of background noise, and frequently cannot hear the telephone or door bell ringing. On free field testing, she can hear a loud voice 6 inches from both her ears. Tuning fork tests are inconsistent. 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 outside the limits of the audiometer (> 70dB HL).
Discuss the management of this patient and rehabilitation.
What are environmental aids and discuss their use. (10 marks).

D) A 14 month old baby boy has been brought to you by her mother. She says that her child is not able to hear and has not developed any speech or even babbling. The baby has no ear infection, no congenital anomalies, and there is no suggestive history of any cause of speech and hearing impairment.
What is the standard form of assessment of hearing in infants and children?

If the results of such tests are equivocal, what objective methods of assessing hearing can be used?
In a child of this age with a severe profound hearing loss, what form of amplification should be used to rehabilitate him? (10 marks).

E) A 67 year old retired army general has come to you with decreased hearing since 3 years. He is having difficulty hearing in the presence of background noise, and cannot hear the door bell or phone ringing. On free field testing, conversational voice is heard at a distance of 2 feet from each ear after masking the non-test ear. Tuning fork tests show bilateral air conduction > bone conduction in Rinne's test and Weber is central.
What is the type of hearing impairment? Can free field voice testing assess hearing thresholds? What is the correlation between free field voice testing and pure tone average thresholds?
Descibe the aspects of the patient's hearing which you would use to determine the gain of the hearing aid to be prescribed.
Describe the hearing aid prescription strategy you would use and state why. (10 marks).

CASE II.

You have been appointed as the speech and language pathologist at JDWNR Hospital. During your tenure, you come across some challenging situations. How will you manage them?

A) A 30 year old female school teacher has developed gradual increase of hoarseness of voice over one year. She has been habitually smoking 10-15 cigarettes for the past few years. Though physically fit, she has developed a dry, allergic type of cough since two weeks. Examination reveals no growth in the larynx, and though both vocal cords are slightly thickened, congested and oedematous, they move normally. A diagnosis of chronic laryngitis is made and treatment is prescribed by the ENT specialist. She is then referred to you for speech therapy.
Enumerate the causes of hoarseness of voice with special emphasis to this age group.
How will you further assess the voice and laryngeal function? What is 'visispeech'?
How will you manage this patient as regards:
1. Advice on vocal hygiene.
2. Methods of relaxing the larynx.
3. Long term follow up.
4. Role of voice rest. (10 marks).

B) A 59 year old laryngectomee has visited the ENT specialist after undergoing total laryngectomy for a stage III carcinoma of the larynx. He has recovered well, but is faced with the dilemma of communicating with others.
Describe the mechanism of phonation and voice production by the larynx. What happens after total laryngectomy?

Discuss vocal rehabilitation after total laryngectomy and methods of communication in laryngectomised patients. (10 marks).

C) You have been assigned to teach the final year ENT Technicians and provide a basic idea of speech and hearing pathology.
What is speech and hearing pathology?
Discuss the difference between speech, language and communication?
Discuss the important milestones in the development of language and comprehension from birth to five years of age. (10 marks).

D) You have been asked to screen children of several kindergarten schools (4-7 years old children), for early diagnosis and management of communication disorders.
How will you screen the children?
After screening, how will you make an individual diagnosis on a one to one evaluation?
Discuss the common language and communication disorders in children. (10 marks).

E) You have been selected to take part in a conference of speech pathologists of South East Asia region. As a representative of your country, you have been asked to:
1. Give your idea on the morbidity caused by communication disorders affecting children there.
2. Describe a typical in-school speech therapy session that you would like to follow.
3. What are the benefits of speech therapy given to such children from an early age and what would be your ultimate aim? (10 marks).