ROYAL CIVIL SERVICE COMMISSION
BHUTAN CIVIL SERVICE EXAMINATION (BCSE) 2018
EXAMINATION CATEGORY: TECHNICAL

PAPER III: SUBJECT SPECIALISATION PAPER FOR OPTOMETRY

Date:	7 October 2018
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 being provided to check the number of pages, printing error, clarify doubts and to read instructions in Question Paper. You are NOT permitted to write during this time.
3. This paper consists of **TWO Sections, namely Section A and 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 2 case studies. Choose only **ONE** case study and answer the questions under 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 correct Section, Part and Question Number will NOT be evaluated and no marks will be awarded.
6. Begin each Section and Part in 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 are required to hand over the Answer Booklet to the Invigilator before leaving the examination hall.**
10. The Question paper has **8 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 (c). Each question carries ONE mark. Any double writing, smudgy answers or writing more than one choice shall not be evaluated.

1. Retinal change specific in proliferative diabetic retinopathy is
   a) A-V shunt.
   b) microaneurysm.
   c) neovascularization.
   d) soft cotton wool exudates.

2. A person wears a distance correction of +3.00 DS with IPD of 66mm. What amount of prismatic effect will be induced by the distance correction at the near IPD of 62 mm?
   a) 0.4 pd BI
   b) 0.6 pd BI
   c) 0.4 pd BO
   d) 0.6 pd BO

3. Which of the following chemical substances can penetrate deep into the ocular tissues?
   a) Acetic acid
   b) Calcium oxide
   c) Sulphuric acid
   d) Hydrochloric acid

4. Ms. Yangdon was diagnosed with progressive keratoconus and was interested to wear scleral lenses. What procedure would you advise before you prescribe scleral lenses?
   a) Argon laser
   b) Intacs implantation
   c) Penetrating keratoplasty
   d) Corneal collagen crosslinking

5. The light reflex is absent, but the near reflex is present in
   a) Argyll Robertson pupil.
   b) Adie's tonic pupil.
   c) Marcus-Gunn pupil.
   d) Wernicke's heminopic pupil.

6. Most common organism isolated from corneal ulcers in patients of chronic dacryocystitis is
   a) Escherichia coli.
   b) Pseudomona ariginosa.
   c) Streptococcal pneumonae.
   d) Staphylococcus epididermis.

7. According to Erber and Osborn, detection of subtle facial cues and eye contact is possible from a distance of one meter if the visual acuity is better than
   a) 6/18
   b) 6/24
   c) 6/36
   d) 6/60

8. Ophthalmia neonatorum can be prevented by the use of
   a) Penicillin drops.
   b) 1% Silver nitrate.
   c) normal saline drops.
   d) frequent eye washes.

9. Which of the following statements is **NOT TRUE** about fluorescein stain in ophthalmology?
   a) Solubility of fluorescein water is 50 percent at 15^{o} C.
   b) Stains dead epithelial cells bright green with cobalt blue.
   c) Promotes growth of Pseudomonas aeruginosa in solution.
   d) High molecular fluorescein strip is used for soft contact lens fitting.

10. Universal Eye Health: a Global Action Plan 2014–2019 mandates the WHO member states to decrease the prevalence of visual impairment by
   a) 15% from 2010 to 2019.
   b) 15% from 2014 to 2019.
   c) 25% from 2010 to 2019.
   d) 25% from 2014 to 2019.

11. In presence of media opacities, the best way to perform retinoscopy is
   a) to use concave setting.
   b) to use spot retinoscopy.
   c) to use streak retinoscopy.
   d) to perform off axis retinoscopy.

12. Which of the following statements is true about anti-reflective coatings (ARC)?
   a) ARC absorbs ultraviolet light.
   b) ARC can only be used on plastic lenses.
   c) ARC cause the lenses to grow dark in bright light.
   d) ARC is based on the principle of destructive interference.

13. What is the average amplitude of accommodation as per Hofstetter's formula for a 15 year old?
   a) 10 D
   b) 12 D
   c) 14 D
   d) 16 D

14. The ideal cycloplegic for children below 5 years for retinoscopy is
    a) atropine 1% ointment three times for three days.
    b) homatropine 2% every 10 minutes for three times.
    c) phenylephrine 10% every 5 minutes for three times.
    d) cyclopentolate 1% every 15 minutes for three times .

15. The ideal illumination for consultation room of an ophthalmologist or optometrist is
    a) 100 lux.
    b) 200 lux.
    c) 300 lux.
    d) 400 lux.

16. Regarding the SRK formula for IOL calculation, which of the following is **NOT TRUE**?
    a) The SRK II uses a higher A constant than SRK.
    b) The SRKII is a more accurate formula than SRK.
    c) The SRK formula is not accurate for eye shorter than 22 mm.
    d) The SRK formula is not accurate for eye longer than 24.5 mm.

17. Silver wiring of arterioles is seen in which stage of hypertensive retinopathy?
    a) 1
    b) 2
    c) 3
    d) 4

18. Asymmetric Corneal Technology is incorporated by
    a) Scleral lenses.
    b) Rose K lenses.
    c) Ortho-K lenses.
    d) Piggy bag lenses.

19. During accommodation all the following changes occur **EXCEPT:**
    a) Pupil contracts
    b) Lens becomes thinner
    c) Anterior chamber shallows
    d) Anterior and posterior surface of the lens become convex

20. A patient was hit by a tennis ball on his eye, which used to have 6/6 vision. External eye examination showed no abnormalities. Vision dropped to hand movement, but red reflex was normal. Possible diagnosis is
    a) comotio retinae.
    b) traumatic uveitis.
    c) traumatic cataract.
    d) vitreous hemorrhage.

21. The impact resistance of a lens material can be determined by
    a) Tabor test.
    b) Bayer's test.
    c) Drop ball test.
    d) Caliber's test.

22. A four year old child presents with alternate esotropia dating for one year. The first step management is
    a) proper refraction.
    b) prism prescription.
    c) surgical correction.
    d) exercise on synoptophore.

23. Red-green glasses are used in all of the following tests **EXCEPT:**
    a) TNO test
    b) Hess screen
    c) Maddox wing
    d) Diplopia charting

24. The measure of the risk of developing some new condition within a specified period of time:
    a) Etiology
    b) Incidence
    c) Prevalence
    d) Incidence proportions

25. Which of the following is **NOT** an indication for ocular prosthesis?
    a) Phthisis bulbi
    b) Microphthlmos
    c) Adherent leucoma
    d) Anopthalmic socket

26. What degree of pantoscopic tilt is usually considered cosmetically desirable?
    a) 3
    b) 6
    c) 9
    d) 12

27. Granulomatous uveitis occurs in all of the following **EXCEPT**
    a) Tuberculosis.
    b) VKH syndrome
    c) Bechet's disease
    d) Sarcoidosis

28. Which of the following is **NOT** a stimulus related factor affecting visual acuity?
    a) Contract of the stimulus
    b) Retinal locus of stimulus
    c) Luminance of test object
    d) Geometrical configuration of stimulus

29. All of the following are reliability indices in Humphrey Visual Field analysis **EXCEPT:**
    a) fixation loss.
    b) false positive errors.
    c) false negative errors.
    d) pattern standard deviation.

30. If the luminance is increased beyond a level, the visual acuity will suffer because of
    a) reflections.
    b) veiling glare.
    c) disability glare.
    d) disconfort glare.

PART II – Short Answer Questions (20 marks).

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

1. Define the following terms. [5 x1=5]
    a) Low vision
    b) Keratoconus
    c) Sports vision
    d) Vision Therapy
    e) Convergence insufficiency

2. Elaborate the following abbreviations used in ophthalmology and optometry. [10x1/2=5]
    a) OU
    b) ROP
    c) OCT
    d) DVD
    e) VKC
    f) ARMD
    g) FDDT
    h) OSSN
    i) RAAB
    j) PERRLA

3. Write a short note on management of anisometropic amblyopia. [5]

4. What is allergic conjunctivitis? Briefly describe its clinical features and management. [5]

SECTION B

Case Study

Choose either Case I or II from this section. Each case study carries 50 marks.

Case I

A 55 years old male teacher presented to the eye out-patient department (OPD) of the Phuentsholing General Hospital with a history of headache and difficulty in near vision. Distance visual acuity was 6/6 and near visual acuity was N12 at 40 cm.

On slit lamp examination, anterior segment was normal. Intraocular pressure with iCare tonometer was 25mmHg and 27mmHg on the right and left eye, respectively. On fundoscopy with direct ophthalmoscopy, the cup to disc ratio was 0.5:1 in the right eye and 0.7:1 in the left eye. The patient was corrected for presbyopia and referred on OPD basis to JDW National Referral Hospital (JDWNRH) for further investigations and management.

Based on the above information, answer the following questions.

1. What could be the most probable reason for referral of the patient to JDWNRH? [2]

2. What further investigations would you advise to confirm your diagnosis? Describe all the available diagnostic procedures briefly. [10]

3. How would you manage the condition if the suspected diagnosis is confirmed? [6]

4. List all the ocular structures in the anterior segment sequentially. [5]

5. What is presbyopia? What would be the approximate near correction for the patient? [3]

6. If the patient wanted to wear progressive addition lenses (PAL), what additional measurements would you perform? [3]

7. What is intraocular pressure (IOP)? Which is the gold standard instrument for measurement of IOP? What is the normal range of IOP? [3]

8. What does vision of 6/6 mean in ophthalmology? [2]

9. Draw a diagram of the left fundus showing the cup disc ratio of 0.7:1, normal foveal reflex and normal retinal vessels. [5]

10. Briefly describe the procedure to perform direct ophthalmoscopy? [5]

11. Name any three drugs used to reduce intraocular pressure and explain how it works. [6]

Case II

Miss Eden, 32 years old accountant working in a private firm presents to Ophthalmology Department, JDW National Referral Hospital with complaint of dryness, gritiness and burning sensation of both eyes for past 6 months. Her best corrected visual acuity was 6/6 in both the eyes with -3.00/-0.50 x 90 in the right eye and -3.00/-1.50 x 90 in the left eye. On slit lamp examination, mild conjunctival keratinization and redness was noted. The marginal tear meniscus height was 0.5mm.

Based on the above information, answer the following questions:

1. What is the most probable diagnosis for her complaint? [2]

2. What investigations would you advise to confirm and quantify the diagnosis? [8]

3. How would you manage and treat the condition? Describe in detail. [8]

4. Would you use fluorescein stain for the diagnosis of the case? List five uses of fluorescein in ophthalmology. [6]

5. If the patient wants to wear contact lens as professional demand, what contact lens power, design, material and wearing modality would you advise in each eye? [8]

6. She was fitted with a lens -2.50/-1.25 x 90 in the left eye and the lens rotated 20 degrees to the left. What is her final prescription? [3]

7. What type of astigmatism is present in the left eye? Draw a ray diagram to illustrate it. [3]

8. She wants to know if she could undergo LASIK for her refractive error. What would you recommend? [2]

9. Write a short note on Lasers in Ophthalmology. [5]

10. List down all the slit lamp illumination techniques. [5]

TASHI DELEK