Name : .....

Roll No. : .....

Invigilator's Signature : .....

CS / B.OPTM / SEM-4 / BO-401 / 2011

2011

VISUAL OPTICS (OPTICS – IV)

Time Allotted : 3 Hours *Full Marks* : 70

The figures in the margin indicate full marks.

Candidates are required to give their answers in their own words as far as practicable.

GROUP – A

(Multiple Choice Type Questions)

1. Choose the correct alternatives for any *ten* of the following : $10 \times 1 = 10$

   i) Pelli Robson chart is used for

      a) testing visual acuity

      b) glare testing

      c) contrast sensitivity testing

      d) colour vision testing.

   ii) In case of purely axial myopia if a spectacle has been placed at anterior focal plane of the eye RSM will be

      a) 1 b) > 1

      c) < 1 d) 0.

iii) 1 mm shortening of the eyeball can produce

a) 1 D hyperopia b) 3 D hyperopia

c) 1 D myopia d) 3 D myopia.

iv) Spherical equivalent of + 2·00 sph / – 2·50 D. cyL × 90° is

a) + 3·25 D. sph b) – 0·50 D. sph

c) + 0·75 D. sph d) + 0·50 D. sph

e) none of these.

v) A patient with refractive error of

– 1·00 D. sph / –3·00 D. cyL × 180° is an example of

a) with the rule astigmatism

b) against the rule astigmatism

c) mixed astigmatism

d) none of these.

vi) Airy disc is related to

a) Chromatic aberration b) Spherical aberration

c) Distortion d) Diffraction.

vii) Correction with the rule astigmatism will require

a) concave cylinder at 180°

b) concave cylinder at 90° ± 20°

c) convex cylinder at 180° ± 20°

d) none of these.

viii) Classically colour of the pupil in aphakia is

a) Black b) Jet black

c) White d) Grey.

ix) Cause of Index hypermetropia is

a) Pathological b) Physiological

c) Congenital d) Old age.

x) With Pupillary construction

a) diffraction decreases

b) spherical aberration increases

c) depth of focus increases

d) none of these.

xi) Roving Ring scotome is found in

a) Ametropia

b) Aberrations of lens and cornea

c) Nodal point of the eye

d) Aphakia.

GROUP – B

(Short Answer Type Questions)

Write short notes on any *three* of the following. 3 × 5 = 15

2. Cross cylinder.

3. Retinal image size in uncorrected reduced eye.

4. Progressive Myopia.

5. Use of intraocular lens implant (10L) after cataract surgery.

GROUP – C

(Long Answer Type Questions)

Answer any *three* of the following. 3 × 15 = 45

6. What is aphakia ? Mention the disadvantages of spectacle correction of aphakia. How can you treat uniocular aphakia ?

   A patient's average corneal power is 47·00D & IOL power is 18·00D. What is the axial length of his eye ?

   (Use 'A' constant 118·5) 7½ + 7½

7. Explain the relationship of pupil size to blur disc diameter. How is retinal image size determined using reduced eye model ? 8 + 7

8. Define ocular & spectacle refraction. What is the relation between two ? A patient wears + 11 D glass @ 14 mm in front of cornea. What should be the power of the contact lens of this patient ? 7 + 8

9. Define and classify glare. Outline the tests for contrast sensitivity function of the eye. 5 + 10

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