



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 :

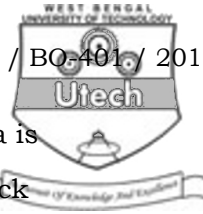
10 × 1 = 10

- 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 $+ 2.00 \text{ sph} / - 2.50 \text{ D. cyL} \times 90^\circ$ is
- a) $+ 3.25 \text{ D. sph}$ b) $- 0.50 \text{ D. sph}$
c) $+ 0.75 \text{ D. sph}$ d) $+ 0.50 \text{ D. sph}$
e) none of these.
- v) A patient with refractive error of $- 1.00 \text{ D. sph} / - 3.00 \text{ D. cyL} \times 180^\circ$ 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 $90^\circ \pm 20^\circ$
c) convex cylinder at $180^\circ \pm 20^\circ$
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. $3 \times 5 = 15$

2. Cross cylinder.
3. Retinal image size in uncorrected reduced eye.
4. Progressive Myopia.
5. Use of intraocular lens implant (IOL) after cataract surgery.



GROUP – C

(Long Answer Type Questions)

Answer any *three* of the following. $3 \times 15 = 45$

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) $7\frac{1}{2} + 7\frac{1}{2}$

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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