



Name : .....

Roll No. : .....

Invigilator's Signature : .....

**CS/B.OPTM/SEM-3/BO-301/2009-10  
2009**

**VISUAL OPTICS ( OPTICS -III )**

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 :

$$10 \infty 1 = 10$$

- i) A patient requires cylinder lens at 30 degree in one eye & at 150 degree in the other eye. What can be the type of astigmatism ?
- a) WTR b) ATR  
c) Oblique d) Bi-oblique.
- ii) Latent hypermetropia is unmasked by
- a) Cycloplegic drugs  
b) Fogging method of refraction  
c) Maddox rod  
d) Pinhole test.

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- iii) Dioptric power is the reciprocal of the focal distance in
  - a) Meter
  - b) Centimeter
  - c) Millimeter
  - d) None of these.
- iv) The strongest stimulus to accommodation is
  - a) Blurring of the retinal image
  - b) Sense of proximity of the object
  - c) Retinal image disparity
  - d) None of these.
- v) Coma is a result of
  - a) Peripheral aberration
  - b) Chromatic aberration
  - c) Diffraction
  - d) None of these.
- vi) NPA is measured using a
  - a) Maddox rod
  - b) Maddox wing
  - c) RAF rule
  - d) Prism bar.
- vii) Temporal crescent is seen in
  - a) myopia
  - b) hypermetropia
  - c) aphakia
  - d) anisometropia.
- viii) If the crystalline lens in an eye is displaced backwards or removed from the eye, the resulting refractive condition is
  - a) Hypermetropia
  - b) Myopia
  - c) Astigmatism
  - d) Presbyopia.
- ix) Smaller pupil can give rise to
  - a) spherical aberration
  - b) chromatic aberration
  - c) diffraction
  - d) coma.



- x) Number of ordinal points in a schematic eye is
  - a) 4
  - b) 8
  - c) 6
  - d) 10.
  
- xi) The far point of a - 4.0 D patient is at
  - a) 20 cm
  - b) 25 cm
  - c) 50 cm
  - d) infinity.

**GROUP – B**

**( Short Answer Type Questions )**

Write short note on any *three* of the following.

3 ∞ 5 = 15

- 2. Schiener's disc experiment.
- 3. Mechanism of accommodation.
- 4. Airy disc
- 5. Bi-oblique astigmatism.

**GROUP – C**

**( Long Answer Type Questions )**

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

- 6. Define amplitude of accommodation. Show how it can be measured. Describe any two procedures for measuring presbyopic near addition.      2 + 6 + 7
  
- 7. What are the assumed different axes and angles present in the human eye ? Define & describe each of them. Define diffraction & resolving power.      4 + 6 + 5

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8. a) Describe with a diagram, listings reduced eye.  
b) Draw and describe different types of regular astigmatism. 8 + 7
9. During refraction by the fogging method, an eye attains visual acuity of 6/6 with a correcting lens of +3.00 DSph. On reducing the correction to +2.00 DSph, visual acuity remains at 6/6. However, acuity diminishes on further reducing the refractive correction.
- a) What is the
- i) absolute hypermetropia
  - ii) facultative hypermetropia
  - iii) Manifest hypermetropia.
- b) How is the acuity maintained at 6/6 on reducing the refractive correction from +3.00 DSph to +2.00 DSph ?
- c) What are the treatment options for a hypermetropic patient ? 6 + 4 + 5
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