

SECOND YEAR M. OPTOM. : SUMMER - 2019
SUBJECT : DISPENSING OPTICS & LOW VISION

Day : Monday
Date : 22/04/2019

S-2019-4023

Time : 09.30 A.M. TO 11.30 A.M.
Max. Marks : 50

N.B.:

- 1) Section – A is of objective questions for total **20** marks.
 - 2) Section – B is of short questions for total **30** marks.
 - 3) Answers to both the sections should be written in **SEPARATE** answer books.
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SECTION – A

Q.1 A) Fill in the blanks: [10]

- i) In order to maintain good optics, the optical center of the ophthalmic lens should be lowered by _____ mm for a pantoscopic tilt of 4 degrees.
- ii) In a lens of power +4.00 DS / +2.00 DC $\times 90^0$, the horizontal focal line is at _____ cm.
- iii) In patients with low vision, telescope used for distance viewing can be modified for close viewing by altering _____.
- iv) _____ telescopic magnification would be required for a patient whose best visual acuity is 10/120 to see a movie where the estimated / needed acuity is 20/40.
- v) Four – point print is equal to _____ M.
- vi) _____ and _____ are the two important aberrations in ophthalmic lens design.
- vii) The light reflected from surface is completely polarized at a specific angle of incidence _____; a point at which the angle between refracted and reflected ray is _____.
- viii) Negative toric lenses are optically advantageous than positive toric lenses due to the result of _____ being less.
- ix) _____ plot demonstrates how power varies along the umbilical line of progressive corridor.
- x) Best way to heat nylon frame is by using _____.

B) State True or False; if False give reason: [10]

- i) Astronomical telescope is non-inverting two lens system which produces erect magnified image.
- ii) Marked spherical aberration is disadvantages of Fresnel lenses, compared to conventional lenses.
- iii) The magnification of a telescope is determined experimentally by exit pupil diameter / entrance pupil diameter.
- iv) High minus powered contact lens in combination with convex power spectacle lens acts as a telescopic system for low vision.

P.T.O.

- v) Polycarbonate lenses cause more chromatic aberration than CR39 lenses.
- vi) Written on the spectacle 45 □ 18, Where 45 stands for – vertical eye size of spectacle frame.
- vii) Porro-prism can be used to form virtual and inverted image.
- viii) Chromatic aberration does not reduce visual acuity, when the wearer looks through the periphery of the lens.
- ix) The effectivity of an IOL is more in the anterior chamber compared to the posterior chamber.
- x) Patients with low vision benefit from reversed contrast.

SECTION – B

Answer **ANY SIX** of the following:

[6 × 5 Marks = 30Marks]

- i) Describe about factors influencing calculation of magnification in low vision.
- ii) Explain the difference between toric lens and atoric lens.
- iii) What are ‘Best Form Lenses’?
- iv) Explain how refraction in low vision patient is different than regular patient.
- v) Discuss the following concepts in PALs:
 - a) Contour plots
 - b) Customized and personalized designs
- vi) Explain the principle of Anti-reflection coating with well labeled diagram.
- vii) A +15.00D stand magnifier is placed on a newspaper and the lens of the magnifier is permanently fixed at 4 cm from the base of the stand. If the patient is wearing a +3.00D (bifocal) addition, what is the equivalent power of this stand magnifier bifocal system?

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