

**VINAYAKA MISSION'S RESEARCH FOUNDATIONS, SALEM**  
**(Deemed to be University)**

**B.OPTOMETRY DEGREE EXAMINATION – February 2020**  
**Second Year**

**OPTOMETRIC OPTICS**

Time: Three hours

Maximum: 80 marks

I Choose the best answer

(10 x 1 = 10)

1. Tolerance as per British standards, for powers over  $\pm 20.00D$  is
  - a)  $\pm 0.50D$
  - b)  $\pm 0.12D$
  - c)  $\pm 0.75D$
  - d)  $\pm 0.25D$
2. Corlon lenses have front surface made of plastic and back surface made of
  - a) Urethane
  - b) Polythene
  - c) Polyurethane
  - d) Pothene
3. A \_\_\_\_\_ with four sides is called quadra
  - a) PRO
  - b) Contour
  - c) Modified saddle
  - d) None of the above
4. The vertical distance from the segment top to the distance optical centre is called as the following EXCEPT.
  - a) Segment drop
  - b) Cut
  - c) Cutting instruction
  - d) Height.
5. Which frame mounting is described as: Holds the lenses in place only at their nasal edge. Thus, there is only one point of attachment per lens
  - a) Numont
  - b) Balgrip
  - c) Wills edge
  - d) Semi rimless
6. Frames that are suitable for safety glasses should have
  - a) Z 87
  - b) Z 870
  - c) Z 78
  - d) Z 780
7. \_\_\_\_\_ is explained in terms of confusion disc
  - a) Lateral spherical aberration
  - b) Astigmatism
  - c) Curvature of image
  - d) Distortion
8. To produce a 1<sup>Δ</sup> BO in a left eye lens of -8.00D, it must be decentred by
  - a) 1/8 cm
  - b) 1/8 m
  - c) 1/8 mm
  - d) 1/8 nm
9. The following are true about '523590', EXCEPT
  - a) It stands for crown glass
  - b) It stands for polycarbonate
  - c) The first three digits tell the refractive index of the material
  - d) The last three digits tell the nu value

(p.t.o)

10. CPF 511 has which colour in the faded state
- |                   |                  |
|-------------------|------------------|
| a) Greenish amber | b) Yellow amber  |
| c) Orange amber   | d) Reddish amber |

II State whether the following statements are **TRUE** or **FALSE** (10 x 1 = 10)

1. For a negative meniscus lens, the centre thickness is given by the formula  $t = e - s_2 + s_1$ .
2. Heavy veins are detected by reflection.
3. Jump exerted by a plano lens having add 3.00 and 45 segment is  $6.75^\Delta$  BD.
4. The pull of a prism on an eye is towards its apex.
5.  $S_1$  Thermodyne classification has fair resistance: tarnish spots may appear within two years.
6.  $R 5^\Delta BU \equiv R 3^\Delta BU, L 2^\Delta BU$
7. The binasal notation of left eye 135 is same as left eye 45 of bitemporal notation.
8. Rivetted spectacles are held in hand for easy reading.
9. Increasing the pantoscopic tilt can move the frame off the eye brows.
10. The discrepancy between petzval surface and far point sphere is called distortive error.

III Fill in the blanks: (10 x 1 = 10)

1. All distances measured above the optical axis are \_\_\_\_\_
2. A \_\_\_\_\_ tool is used to make concave lens.
3. A periscopic lens should always have one surface power to be \_\_\_\_\_.
4. The power carrying part of a lenticular lens is called as a \_\_\_\_\_
5. Minus lenses provide an \_\_\_\_\_ field of view.
6. OU stands for \_\_\_\_\_.
7. The cement \_\_\_\_\_ tends to discolour with age.
8. Nu value of Perspex is \_\_\_\_\_
9. The refractive index of polycarbonate is \_\_\_\_\_
10. A +12.00D lens is moved 3mm closer to the eye. The new power of the lens is \_\_\_\_\_.

IV Answer any **FIVE** of the following: (5 x 6 = 30)

1. Illustrate the progressive markings and compare hard and soft design.
2. On what factors does transmittance in a photochromic glass depend on?
3. Write on any 6 special purpose frames.
4. Using prentice rule, find out the decentration required for a -4.00DS lens to produce
  - a. 2 prism base down
  - b. 3 prism base up
  - c. 2 prism base in

-- (3) --

5. Explain the optics of anti-reflection coatings.
6. Illustrate (only) the boxing system in detail along with measurements and markings for bifocal lens also
7. Explain: Effective power of a prism in near vision.

V Write any **TWO** essays of the following: (2 x 10 = 20)

1. Using formula, calculate the equivalent power, front vertex power, back vertex power for 2 positive lenses,  $F1 = +5.00DS$ ,  $F2 = +3.00DS$ , separated by 5cm.
2. Aberrations in ophthalmic lenses.
3. Write on
  - a. 5 faults on lens surface
  - b. 5 faults in lens material

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(Sl.No. M22215)