

**BACHELOR OF CLINICAL OPTOMETRY**  
**I-B. Optometry Sem-I : WINTER :- 2021**  
**SUBJECT: DISPENSING OPTICS - I**

Day : Tuesday  
Date 8/3/2022

W-828-2021

Time : 10:00 AM-01:00 PM  
Max. Marks: —

**N.B.** : Section A is given on a **SEPARATE** sheet and has to be answered on the same sheet. This sheet should be completed with the **first 30 minutes** of starting of the examination. This sheet with Section – A only will be collected by the Supervisor.

Seat No. : \_\_\_\_\_

**SECTION – A**

**Q.1 Fill in the blanks** **(10)**

- i) Refractive index is defined as \_\_\_\_\_.
- ii) Properties of prisms are \_\_\_\_\_, \_\_\_\_\_ and \_\_\_\_\_.
- iii) The plastic material which undergoes reversible changes on heating is called as \_\_\_\_\_.
- iv) Frames made especially for those needing a reading correction but no distance correction is known as \_\_\_\_\_.
- v) The two most common systems used for measuring lens size and specification with respect to frame are \_\_\_\_\_ and \_\_\_\_\_.
- vi) In trueing \_\_\_\_\_ abrasive is used whose average grain size is \_\_\_\_\_.
- vii) Nodal points are defined as \_\_\_\_\_.
- viii) Abbe value of lens material is \_\_\_\_\_ proportional to \_\_\_\_\_.
- ix) Formula for calculating front vertex power is \_\_\_\_\_.
- x) When the object is kept between F and pole of concave mirror, then the image is formed is \_\_\_\_\_.

**Q.2 State True or False :** **(10)**

- i) High powered convex lenses produce barrel shape distortion.
- ii) CR<sub>39</sub> is a thermosetting material.
- iii) The power of the lens depends upon its thickness, refractive index and its surface power.
- iv) Vogel's formula is used to calculate base curve of ophthalmic lens.
- v) Impact resistance of ophthalmic lenses can be tested by Drop Ball Test.
- vi) If base metal is thinly plated with gold then frame material is said to be gold filled.
- vii) GCD is same as Frame PD.
- viii) Angle of deviation of prism is half of apical angle.
- ix) Thin lens has six cardinal points.
- x) Minimum blank size is calculated by using effective diameter.

Marks obtained : \_\_\_\_\_

Signature of the Invigilator : \_\_\_\_\_

Signature of the Examiner : \_\_\_\_\_

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Time : 10:00 AM-01:00 PM  
Max. Marks: 70

**N.B. :**

- 1) There are three sections as  
Section – A = Objective Type Questions - 20 marks  
Section – B = Long Questions - 20 marks  
Section – C = Short Questions - 30 marks
- 2) Section A is given on a separate sheet and has to be answered on the same sheet. This sheet should be completed with the first 30 minutes of starting of the examination. This sheet with Section A only will be collected by the Supervisor.
- 3) **Section B** has 3 long questions and **ANY TWO** questions have to be answered on the separate sheet.
- 4) **Section C** has 6 short questions and **ANY FIVE** questions have to be answered on the separate answer sheet.
- 5) Draw neat labeled diagrams **WHEREVER** necessary.

**SECTION – B**

- Q.3** Attempt **ANY TWO** of the following. **(20)**
- i) Define ophthalmic prisms; explain its optical properties with diagram. State Prentice's Rule and calculate the amount and type of prismatic effect in case of – 6.00 DS lens decentered 4 mm nasally.
  - ii) Write about ophthalmic lens materials with advantages and disadvantages.
  - iii) Write in detail about how a glass blank is surfaced into a finished cut lens.

**SECTION – C**

- Q.4** Attempt **ANY FIVE** of the following. **(30)**
- i) Define transposition and transpose the following in all possible forms:
    - a) + 1.00 DS / – 2.00 DC x 20<sup>0</sup>
    - b) + 4.00 DC x 90<sup>0</sup>, – 2.00 DC x 180<sup>0</sup>
    - c) + 2.00 DS / – 2.00 DC x 90<sup>0</sup>.
  - ii) Differentiate Datum and Boxing system.
  - iii) Explain the procedure of hand neutralization of sphero-cylindrical lens.
  - iv) Define Vergence. Calculate vergence of +5.00 DS lens, if the real object is kept 10 cm away from the lens. Where is the image formed? Is the image real or virtual, inverted or erect, small or large?
  - v) Define :
    - a) Ophthalmic lens
    - b) Back vertex power
    - c) Focal points
  - vi) Explain individual batch method of ophthalmic glass manufacturing.

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