



**MASINDE MULIRO UNIVERSITY OF
SCIENCE AND TECHNOLOGY
(MMUST)**

MAIN CAMPUS

**UNIVERSITY EXAMINATIONS
2021/2022 ACADEMIC YEAR**

**SECOND TRIMESTER
Main exam**

**FOR THE DEGREE
OF
BACHELOR OF OPTOMETRY AND VISION SCIENCE**

COURSE CODE: BOV 223

COURSE TITLE: APPLIED OPTICS II

DATE: 28/04/2022

TIME: 3-5PM

INSTRUCTIONS TO CANDIDATES

Answer all questions

TIME: 2hrs

MMUST observes ZERO tolerance to examination cheating

1. A 50-year-old wearer of progressive lenses complains of having to tilt his head forward to see in the distance
 - a) What are the steps involved to solve the problem of this patient (5marks)
 - b) What are the possible causes of his problem? (2marks)
 - c) What are the possible solutions to his problems? (3marks)

2. (a) What are five quality checks you will use to confirm the qualities of the ideal optical frame selection of a progressive lens fit? (5 marks).

(b) Describe the effects of lens type on frame choice (5marks).

(c) The former is a dummy lens that is used to produce the specific lens fit in a frame during the automatic edging process, describe in steps how the former is produced. (10 marks).

3. (a) If a Focimeter has a standard lens of +25.00D, what is the movement of the target per diopter of lens power under test? (2 marks).

(b) What is the transverse chromatic aberration exhibited by a -6.00D lens made in plastic material with abbe number of 40 when the eye looks through 8mm below the optical center? (3marks).

(c) The prescription R -3.00/-2.00 x 35 add +1.50D is dispensed as 25 flat-top bifocal with segment drops of 4mm. what's the difference in the vertical prismatic effects near viewpoint 8mm below and 2mm inwards from the distance optical center? (3marks)

(d) The prescription +3.00/+2.00 x90 is made in CR39 and edged 45mm round. The thin edge substance is 1.8mm. Calculate the center thickness. (2marks).

(e) Discuss the factors you will consider before dispensing spherocyl lenses to hyperopic astigmatic patients (8marks).

(f) List qualities of an ideal sunglass to be used in winter at Kisumu beach (2marks).