



*(University of Choice)*

**MASINDE MULIRO UNIVERSITY OF  
SCIENCE AND TECHNOLOGY**

**(MMUST)**

**MAIN CAMPUS**

**UNIVERSITY MAIN EXAMINATIONS**

**2022/2023 ACADEMIC YEAR**

**THIRD YEAR, SECOND SEMESTER EXAMINATIONS**

**FOR THE DEGREE OF**

**BACHELOR OF OPTOMETRY AND VISION SCIENCES**

**COURSE CODE: BOV 321**

**COURSE TITLE: CONTACT LENS II: SPECIALITY PRACTICE**

**DATE: 17/4/2023**

**TIME: 12.00-2.00PM**

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**INSTRUCTIONS TO CANDIDATES**

**Answer all Questions**

Section A: Multiple choice questions (MCQ) (20 marks)

Section B: short Answer Questions (SAQ) (30 marks)

Section C: Long Answer Questions (LAQ) (20 marks)

**TOTAL 70 MARKS**

**TIME: 2 Hours**

MMUST observes ZERO tolerance to examination cheating

This Paper Consists of FOUR Printed Pages. Please Turn Over.

## SECTION A MULTIPLE CHOICE QUESTIONS

1. An 18-year-old swimmer is probably best managed for their myopia of  $-3.50D$  with which type of contact lenses?
  - a. Soft biweekly/monthly replacement contact lenses
  - b. Daily disposable (DD) contact lenses
  - c. Prescription swimming goggles
  - d. Orthokeratology
2. Which one of the following is a minor tear protein involved in host defences?
  - a. Lipocalin
  - b. Lysozyme
  - c. Cytokines
  - d. Mucin
3. As a defence mechanism, giant papillary conjunctivitis (GPC) induces an increase in:
  - a. T cells
  - b. Dendritic cells
  - c. Mast cells
  - d. B cells
4. Which one of the following is an advantage of monovision?
  - a. Reduced stereopsis and contrast
  - b. Adaptation of the non-dominant eye
  - c. Night driving
  - d. Ready availability of replacement single-vision contact lenses
5. Which one of the following statements related to contact lens deposits is true?
  - a. Soft contact lenses are susceptible to protein deposition that rubbing removes only partially
  - b. Lipid deposits are more wearer-dependent and show 30% variability among wearers
  - c. Contact lens deposition rates have shown a direct correlation with tear protein concentrations
  - d. White inorganic deposits are homogenous and are due to elevated levels of calcium in and on the contact lens
6. What is the function of the buffer system in contact lens care products?
  - a. To adjust and maintain solution pH
  - b. To enhance the solution's viscosity
  - c. To adjust the solution's osmolality
  - d. To improve contact lens wettability
7. A presbyope, who is strongly right-eye dominant, has the following spectacle prescription:  
Re: +1.50 d  
Le: +2.00 d  
Add: +1.25 d  
What would probably be the suitable monovision prescription for this patient?
  - a. Right +1.50 d and left +3.25 d
  - b. Right and left +2.75 d
  - c. Right +2.75 d and left +2.00 d
  - d. Right and left +3.25 d

8. Which one of the following slit-lamp illumination techniques is best for observing corneal wrinkling?
- Direct illumination
  - Sclerotic scatter
  - Tangential illumination
  - Marginal retro-illumination
9. Which one of the following is a cause of 'Smile' and desiccation staining in contact lens wear?
- Oedema of the corneal epithelium
  - Depletion of the aqueous phase of the post-lens tears film
  - Solution toxicity
  - Contact lens surface deposits
10. Therapeutic management of Dellen includes which one of the following:
- Ocular lubricants
  - Topical antibiotics
  - Mild steroids
  - Histamine blockers
11. Contact lens -related microbial keratitis (MK) is most commonly associated with which organism?
- Fusarium solani
  - Staphylococcus aureus
  - Candida albicans
  - Pseudomonas aeruginosa
12. Which one of the following describes a nipple cone cornea?
- Small, central cone, less than 5 mm in diameter and very steep
  - Paracentral cone up to 8 mm in diameter and very steep
  - Large, central cone up to 8 mm in diameter and very steep
  - Small, paracentral cone less than 5 mm in diameter and very steep
13. What is the minimum exposure time to 3% Hydrogen Peroxide H<sub>2</sub>O<sub>2</sub> required to inactivate bacteria Effectively?
- 5 minutes
  - 10-15 minutes
  - 30 minutes
  - 45-60 minutes
14. Why is neovascularization of an eye after a penetrating keratoplasty undesirable?
- Unacceptable cosmesis
  - Topographical changes may adversely affect contact lens behaviour
  - Active blood vessels can induce graft rejection
  - Increased risk of subepithelial haemorrhaging
15. According to rabinowitz (1995, 1998), Which one of the following can the diagnosis of keratoconus can be based on?
- Ks > 47.2 d, inferior steepening > 1.2 d, astigmatic axis skewed > 21°
  - Ks > 47.2 d, inferior steepening > 2 d, astigmatic axis skewed > 30°
  - Ks > 50 d, inferior steepening > 1.2 d, astigmatic axis skewed > 21°
  - Ks > 50 d, inferior steepening > 2 d, astigmatic axis skewed > 30°

16. Which one of the following statements about the cleaning of rigid gas-permeable contact lenses is true?
- Contact lenses should be rubbed for less than 10 secs
  - Contact lenses should be cleaned between the thumb and forefinger
  - Contact lenses should be rubbed vigorously with a cleaner containing a mild abrasive
  - The front surface of a high-plus contact lens is more difficult to clean fully
17. Which one of the following is the best way for a patient to remove lipid deposits from a rigid gas-permeable contact lens?
- Use an enzymatic cleaner weekly
  - Re-polishing the contact lens surface
  - Switch to hydrogen peroxide disinfection
  - Use an alcohol-based surfactant cleaner
18. Rizzuti's sign is the nasal image of the light from a torch directed:
- From the nasal side
  - Anteriorly but not parallel to the iris plane
  - Parallel to the iris plane and refracted by the anterior eye
  - Tangentially towards the iris to elucidate the iris profile
19. Which one of the following is a chelating agent, commonly used as an Antimicrobial enhancer in combination with other preservatives?
- Polyquaternium-1
  - Polyethylene glycol
  - Chlorhexidine gluconate
  - EDTA
20. Contact lens-induced acute red eye (CLARE) is usually associated with which one of the following?
- Significant bacterial colonization of the cornea and conjunctiva
  - High numbers of gram-positive bacteria on the contact lens
  - High numbers of gram-negative bacteria on the contact lens
  - Fungal colonization of the contact lens

## SECTION B SHORT ANSWER QUESTIONS

- Differentiate between Alternating (translating) and simultaneous bifocal contact lenses (6marks)
- Identify **six** anatomical factors that make fitting contact lenses to the pediatric population difficult (6 marks).
- Discuss the **three** major techniques for fitting rigid gas permeable lenses in keratoconus (6 marks)
  - Highlight **six** contact lens management options for keratoconus patients (6 marks)
- Write short notes on hydrogen peroxide as a method of contact lens disinfection (6marks)

## SECTION C LONG ANSWER QUESTIONS

1. Discuss orthokeratology under the following subheadings (20 marks)
  - a) Definition (1marks)
  - b) Fitting curves (5marks)
  - c) Advantages (2marks)
  - d) Disadvantages (2marks)
  - e) Indications (2marks)
  - f) Contraindications (3marks)
  - g) Topography is an important aspect when fitting an ortho-k lens. Briefly explain 5 Topographical patterns that may be seen during ortho-k fitting. (5marks)

