

**051106T4APB**

**APPLIED BIOLOGY LEVEL 6**

**APB/OS/AB/CC/03/6/A**

**CARRY OUT MICROSCOPY**

**July/August 2024**



**TVET CURRICULUM DEVELOPMENT, ASSESSMENT AND CERTIFICATION  
COUNCIL (TVET CDACC)**

**WRITTEN ASSESSMENT**

**TIME: 3 HOURS**

**INSTRUCTIONS TO CANDIDATE**

1. This paper consists of two sections; **A** and **B**
2. Answer **ALL** the question as guided in each section
3. Marks for each question are as indicated in the brackets
4. You are provided with a separate answer booklet to answer the questions
5. Do not write in this question paper

**This paper consists of three (3) printed pages**  
**Candidates should check the question paper to ascertain that all pages are printed as**  
**indicated and that no questions are missing**

**SECTION A (40 MARKS)**

*(Answer **all the** questions from this section)*

1. A microscope has adjustment Knobs. Differentiate between the two adjustment knobs in a microscope. (4 Marks)
2. Objective lenses assist in magnifying the specimen. State the **FOUR** objective lenses of a microscope and their magnifications. (4 Marks)
3. The right materials should be used in cleaning of a microscope. List any **FOUR** must-have requirements needed when cleaning a microscope. (4 Marks)
4. Correct focusing ensures clarity of the specimen. Explain **THREE** steps followed when focusing an object using high power objective (X40). (3 Marks)
5. In a scanning electron microscope, specimen is subjected to a narrow beam of electrons. Name **THREE** limitations of the scanning electron microscope. (3 Marks)
6. An electron microscope uses a beam of electrons as a source of illumination. State any **FOUR** advantages of an electron microscope. (4 Marks)
7. Dark field microscope makes it easy to obtain the correct focal plane at low magnification for small, low contrast specimens. Explain any **FOUR** uses of a Dark field microscope. (4 Marks)
8. Microscopy is used in different areas. State any **THREE** applications of microscopy in healthcare. (3 Marks)
9. Microscopy is based on illumination. State **THREE** illuminating parts found in a microscope (3 Marks)
10. Fluorescence microscope is a type of light microscope. List any **FOUR** Principles of a fluorescence microscope. (4 Marks)
11. Immersion oil is necessary in microscopic examination of certain specimen. Explain **TWO** uses of this oil when visualizing specimen. (4 Marks)

**SECTION B (60 MARKS)**

*(Answer Question Twelve and any Other TWO Questions)*

12. a) A microscope requires regular servicing. Discuss any **SEVEN** daily care and maintenance practices carried out on a microscope. (7 Marks)
- b) Mechanical parts of a computer are very important for proper function of a computer. Discuss any **FOUR** mechanical parts of a microscope. (8 Marks)
- c) The exact size of a microorganism can only be determined by utilizing a calibrated ocular micrometer. Describe the procedure of getting one ocular micrometer graduation. (5 Marks)
13. a) Microscopy is based on various principles. Explain any **FOUR** basic principles in microscopy. (8 Marks)
- b) All the optical parts should be kept in perfect optical axis. Discuss the **FOUR** optical parts of a light microscope. (12 Marks)
14. a) A digital microscope is a variation of a traditional optical microscope. Explain any **FIVE** features of a digital microscope. (10 Marks)
- b) The revolving parts of microscope require regular lubrication. Discuss any **FIVE** importance of lubrication in a microscope. (10 Marks)
15. a) Microscopy involves preparation of sample for visualization. Discuss any **FOUR** options of specimen preparation in bright field microscope. (12 Marks)
- b) Microscopes should be handled with care. Explain any **FOUR** ways on how to properly handle a microscope. (8 marks)