TEVETA

Technical Education, Vocational and Entrepreneurship Training Authority

DIPLOMA IN SCIENCE LABORATORY TECHNOLOGY

LEVEL 6 YEAR I EXAMINATIONS

FINAL INTEGRATED SUMMATIVE EXAMINATIONS

SITTING: JULY /AUGUST 2025

SUBJECT: FOUNDATION BIOLOGY THEORY

TIME: THREE (3) HOURS **TOTAL MARKS: 100**

PASS MARK: 50

INSTRUCTIONS TO CANDIDATE

1. Write your Examination number and National Registration Card (NRC) number on the answer booklet provided. Ensure you append your signature in the space provided on the answer booklet.
2. Write the ANSWER SCRIPT SERIAL NUMBER on the examination register and on the entry slip.
3. This paper has SEVEN (7) questions. Question ONE (1) is compulsory, Answer FOUR (4) questions from the remaining SIX (6) questions.
4. Diagrams may be used where necessary to clarify your answer.
5. Cellphones and programmable calculators are not allowed in the examination room.

DO NOT TURN THIS PAGE UNTIL YOU ARE TOLD SO.

QUESTION 1 (COMPULSORY)

(a) State four **(4)** bio elements that make up proteins. **[4 marks]**

(b) Describe four **(4)** functions of named globular proteins. **[8 marks]**

(c) Explain four **(4)** industrial applications of water. **[8 marks]**

TOTAL: 20 MARKS

QUESTION 2

(a) Copy and complete the table, by naming and stating the color of the four **(4)** pigments that make up chlorophyll. **[8 marks]**

	Name of pigment	Colour of the pigment
(i)		
(ii)		
(iii)		
(iv)		

Table 1

(b) Explain the importance of meiosis. **[12 marks]**

TOTAL: 20 MARKS

QUESTION 3

(a) Enzymes are biological catalysts.

(i) Describe the factors that affect enzyme activity. **[6 marks]**

(ii) Explain the 'induced fit' theory of enzyme-substrate reaction. **[3 marks]**

(b) Deoxyribonucleic Acid (DNA) is a double helix structure. Each strand of DNA is made of nucleotides.

(i) Define a nucleotide. **[2 marks]**

(ii) Describe the components of a nucleotide. **[3 marks]**

(iii) Differentiate DNA from RNA. **[6 marks]**

TOTAL: 20 MARKS

QUESTION 4

(a) Define the following terms:

(i) Activation energy. **[2 marks]**

(ii) Protein conformation. **[2 marks]**

(b) State two **(2)** uses of steroids. **[4 marks]**

(c) Describe six **(6)** major groups of enzymes. **[12 marks]**

TOTAL: 20 MARKS

QUESTION 5

(a) Define the following:

(i) Self-pollination. **[2 marks]**

(ii) Seed dispersal. **[2 marks]**

(b) Explain three **(3)** disadvantages of cross pollination. **[6 marks]**

(c) Describe the adaptations of a wind pollinated flower. **[10 marks]**

TOTAL: 20 MARKS

QUESTION 6

Figure 1. shows some pieces of apparatus used in a laboratory.

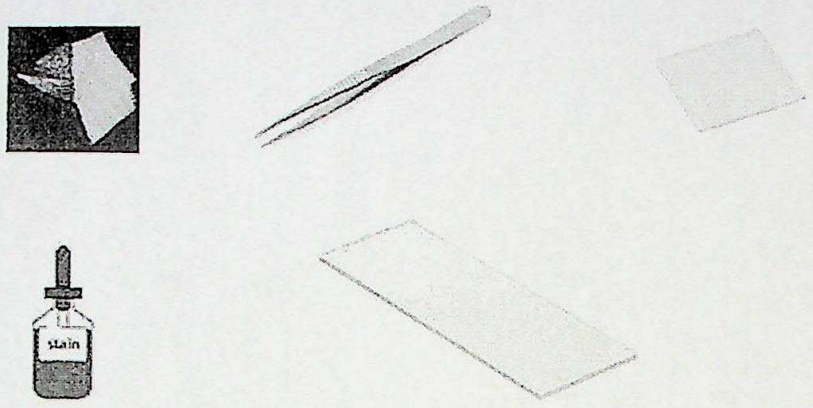


Figure 1

(a) Explain the procedure apparatus could be used to prepare a slide of onion cells to view under a microscope. **[8 marks]**

(b) Describe the precautions that should be taken into consideration when preparing the slide. **[4 marks]**

(c) With the aid of a simple labelled drawing of the stem cross section,indicate the position of parenchyma, collenchyma and sclerenchyma tissues. **[8 marks]**

TOTAL: 20 MARKS

QUESTION 7

(a) Explain the characteristics of organisms belonging to the kingdom Eukaryote. **[6 marks]**

(b) Differentiate plant cells from animal cells. **[8 marks]**

(c) Relate the structure of the chloroplast to its function. **[6 marks]**

TOTAL: 20 MARKS