

1904/105
BIOLOGY TECHNIQUES I
Oct./Nov. 2018
Time: 3 hours



THE KENYA NATIONAL EXAMINATIONS COUNCIL

CRAFT CERTIFICATE IN SCIENCE LABORATORY TECHNOLOGY

MODULE I

BIOLOGY TECHNIQUES I

3 hours

INSTRUCTIONS TO CANDIDATES

You should have the following for this examination:

Answer booklet;

Scientific calculator (battery operated).

The paper consists of TWO sections; A and B.

Answer ALL questions in Section A and any TWO questions from Section B.

Each question in section A carries 4 marks while each question in section B carries 20 marks.

Maximum marks for each part of the question are indicated.

Candidates should answer all questions in English.

This paper consists of 4 printed pages.

Candidates should check the question paper to ascertain that all the pages are printed as indicated and that no questions are missing.

SECTION A (60 marks)

Answer ALL the questions in this section.

1. (a) Write the scientific name for maize. (2 marks)
(b) Name the kingdoms whose members are eukaryotic. (2 marks)

2. Figure 1 represents a compound microscope.

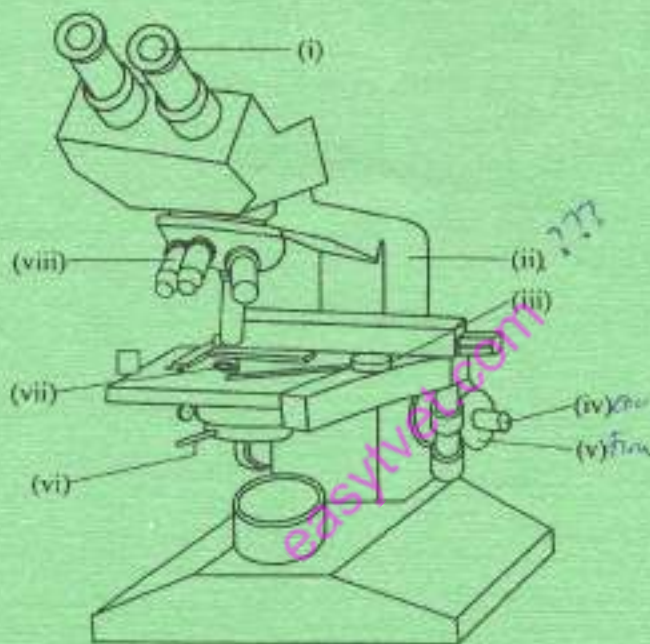


Fig. 1

Identify parts labelled (i), (ii), (iii), (iv), (v), (vi), (vii), (viii). (4 marks)

3. State the functions of the following cell organelles:

- (a) Ribosomes (1 mark)
(b) Golgi apparatus (1 mark)
(c) Lysosomes (1 mark)
(d) Centrioles (1 mark)

4. Explain end-point inhibition of enzymes. (4 marks)

5. Figure 2 represents drawings of scanning electron micrographs of three types of bacteria:



Fig. 2

Epididymus
Erythrocytes

- (a) Identify each type of bacteria X, Y, Z. (3 marks)
- (b) Name the test carried out to distinguish between different types of bacterial cell wall. (1 mark)
6. Describe the role of water in the light dependent reaction of photosynthesis. (4 marks)
7. Explain the function of each of the following parts in human intestine:
- (a) capillaries; (2 marks)
- (b) lacteal (2 marks)
8. State the adaptation of alveoli in gas exchange. (4 marks)
9. List the structures in the skin that play the role of thermoregulation. (4 marks)
10. (a) Distinguish between plasma and serum. (2 marks)
- (b) Identify any **four** organs of the lymphatic system. (2 marks)
11. (a) Differentiate between G_1 and G_2 of the cell cycle. (2 marks)
- (b) Distinguish between cytokinesis in plants and animals. (2 marks)
12. Distinguish between each of the following in plant vegetative reproduction.
- (a) a bulb and a corm; (2 marks)
- (b) a stolon and a runner. (2 marks)

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13. Explain any **four** functions of placenta. (4 marks)
14. Describe the features common to both male and female reproductive system in mammals. (4 marks)
15. (a) Identify the forces that hold a column of water in the xylem of a tall tree. (2 marks)
- (b) List the functions of a plant stem. (2 marks)

SECTION B (40 marks)

Answer any TWO questions from this section.

16. (a) Outline digestion in the small intestine. (13 marks)
- (b) List the characteristics of enzymes. (7 marks)
17. Describe the functions of mammalian blood, giving examples. (20 marks)
18. (a) State the general characteristics of algae. (6 marks)
- (b) Differentiate between dicotyledonae and monocotyledonae. (14 marks)
19. Outline sterilization of glasswares using a pressure cooker. (20 marks)



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