

2914/205
PARASITOLOGY AND HISTOLOGY
Oct./Nov. 2022
Time: 3 hours



THE KENYA NATIONAL EXAMINATIONS COUNCIL

DIPLOMA IN APPLIED BIOLOGY

MODULE II

PARASITOLOGY AND HISTOLOGY

3 hours

easyvet.com

INSTRUCTIONS TO CANDIDATES

This paper consists of TWO sections; A and B.

Answer ALL questions in section A and any THREE questions from section B in the answer booklet provided.

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

Maximum marks for each part of a question are indicated.

Candidates should answer the questions in English.

This paper consists of 3 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 (40 marks)

Answer ALL questions in this section.

1. Name **one** disease transmitted by each of the following vectors:
 - (a) mosquitoes; (1 mark)
 - (b) sand flies; (1 mark)
 - (c) tsetse flies; (1 mark)
 - (d) reduviid bugs. (1 mark)
2. Describe the morphology of *Trichomonas vaginalis* trophozoite. (4 marks)
3. Differentiate between epimastigote and trypomastigote of *Trypanosoma spp.* (4 marks)
4. (a) Define the term 'trophozoite'. (1 mark)
(b) State **three** types of hosts in the life cycle of *Toxoplasma gondii*. (3 marks)
5. (a) Distinguish between ectoparasites and endoparasites. (2 marks)
(b) Classify the following parasites as either ectoparasites or endoparasites:
 - (i) mites;
 - (ii) *Taenia spp.*;
 - (iii) fleas;
 - (iv) plasmodium. (2 marks)
6. Define the following terms as used in histology:
 - (a) fixation; (2 marks)
 - (b) clearing. (2 marks)
7. Draw any **two** named microtome knife blade profiles. (4 marks)
8. Name the **four** primary animal tissue. (4 marks)
9. Differentiate between xylem vessels and tracheids. (4 marks)
10. Name any **four** types of natural dyes used in histology. (4 marks)

SECTION B (60 marks)

Answer any THREE questions from this section.

11. (a) (i) Draw a labelled diagram of *Leishmania spp* promastigote. (6 marks)
- (ii) State **six** characteristic features of the promastigote. (6 marks)
- (b) Describe modes of transmission of *Toxoplasma gondii*. (6 marks)
- (c) Highlight **two** preventive measures of *Toxoplasma gondii* infection. (2 marks)
12. (a) Describe the plasmodium life cycle in the mosquito phase. (14 marks)
- (b) Describe the modified chemical test for testing the end point of decalcification when Perenyi's fluid has been used. (6 marks)
13. (a) Describe the impression (touch) method of tissue preparation. (4 marks)
- (b) State **four** advantages of using celloidin as embedding media. (4 marks)
- (c) Describe Leishmaniasis under the following:
- (i) types; (3 marks)
- (ii) causative agent; (3 marks)
- (iii) manifestations in human beings. (6 marks)
14. (a) Describe the preparation of a young dicotyledonous stem tissue for microscopic examination. (10 marks)
- (b) Draw a labelled diagram of a cross-section of a young dicotyledonous stem. (10 marks)
15. (a) State the characteristics of:
- (i) osmic acid as a fixative; (10 marks)
- (ii) xylene as a clearing agent. (6 marks)
- (b) Name **four** types of tissues that are ideally processed using a vacuum impregnation oven. (4 marks)

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