

Name: _____

Index No: _____

2404/303

**MICROBIOLOGY, PARASITOLOGY
AND IMMUNOLOGY**

Oct./Nov. 2014

Time: 3 hours

Candidate's Signature: _____

Date: _____



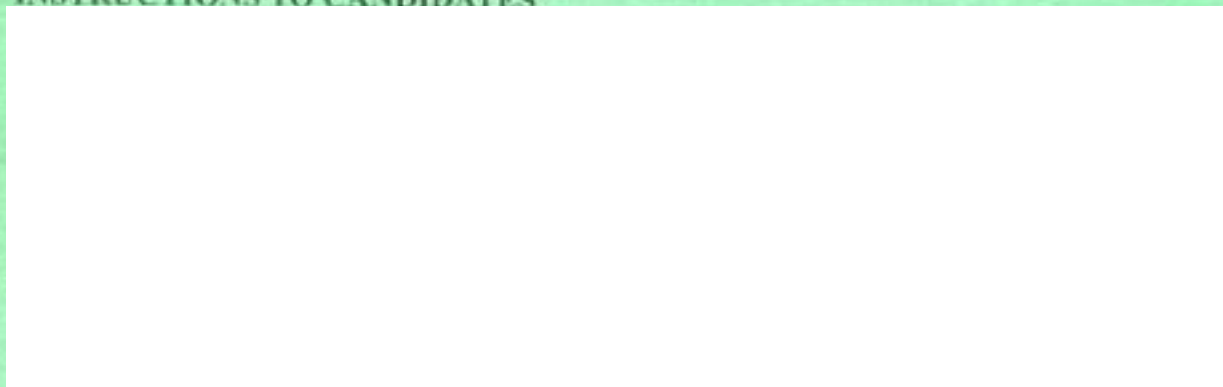
THE KENYA NATIONAL EXAMINATIONS COUNCIL

DIPLOMA IN APPLIED BIOLOGY

MICROBIOLOGY, PARASITOLOGY AND IMMUNOLOGY

3 hours

INSTRUCTIONS TO CANDIDATES



For Examiner's Use Only

SECTION A

Question	1	2	3	4	5	6	7	8	9	10	Total
Marks											

SECTION B

Question	11	12	13	14	15	Total
Marks						

**Grand
Total**

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This paper consists of 16 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 in the spaces provided.

1. Differentiate between flukes and roundworms in terms of:

(a) Shape (1 mark)

(b) Anterior end (1 mark)

(c) Digestive tract (1 mark)

(d) Sexes (1 mark)

2. Identify the most suitable specimen to be collected for the diagnosis of each of the following parasites:

(a) *Entamoeba histolytica* (1 mark)

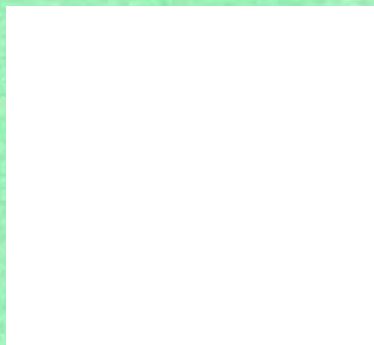
(b) *Loa loa* (1 mark)

(c) *Schistosoma mansoni* (1 mark)

(d) *paragonimus spp* (1 mark)

3. A laboratory technician carried out the form ether concentration technique of a faecal sample from a patient suspect of *Ascaris lumbricoides* infection. Draw a labelled diagram to demonstrate the appearance the content of the centrifuge tube after centrifugation. (4 marks)

4. Draw a labelled diagram of *Giardia lamblia* cyst. (4 marks)



5. Outline the procedure of making a smear of pus using a wire loop. (4 marks)

6. Explain the process of canning in food preparation. (4 marks)

7. (a) Distinguish between a sign and a symptom of a disease. (1 mark)

- (b) Outline the progressive stages of a disease following infection by a pathogen. (3 marks)

8. Explain the significance of microbial activity in beer production. (4 marks)

9. (a) List two types of lymphocytes. (2 marks)

- (b) State any two functions of macrophages. (2 marks)

10. Outline the lytic pathway in complement fixation. (4 marks)

SECTION B (60 marks)

Answer any **THREE** questions from this section in the spaces provided after question 15.

11. (a) Draw a labelled diagram of the promastigote of *leishmania donovani*. (6 marks)
- (b) Outline the transmission of leishmania parasites. (3 marks)
- (c) Describe the life cycle of *leishmania donovani*. (11 marks)
12. (a) Illustrate the life cycle of *schistosoma haematobium* using arrow diagram. (10 marks)
- (b) Explain the prevention and control of the parasite named in 12 (a) above. (10 marks)
13. Describe the secondary sewage treatment. (20 marks)
14. (a) Name the lymphoid organs in the human body. (5 marks)
- (b) For each of the organs named in 14 (a) above;
- (i) Name the location in the body. (7 marks)
- (ii) State the functions. (8 marks)
15. (a) Explain the process of antibody dependent cell cytotoxicity (ADCC). (4 marks)
- (b) State the characteristics of immunoglobulin g (Ig G). (5 marks)
- (c) Draw a labelled diagrams of:
- (i) Secretory IgA (sIg A) (5 marks)
- (ii) Immunoglobulin M (Ig M) (6 marks)