

Name: \_\_\_\_\_ Index No: \_\_\_\_\_

1412/313  
**PARASITOLOGY & HISTOLOGY**  
 June/July 2013  
 Time: 3 hours

Candidate's Signature: \_\_\_\_\_  
 Date: \_\_\_\_\_



**THE KENYA NATIONAL EXAMINATIONS COUNCIL**

**CRAFT CERTIFICATE IN MEDICAL LABORATORY TECHNOLOGY**

**PARASITOLOGY & HISTOLOGY**

**3 hours**

**INSTRUCTIONS TO CANDIDATES**

*Write your name and index number in the spaces provided above.  
 Sign and write the date of examination in the spaces provided above.  
 This paper consists of TWO sections; A and B.  
 Answer ALL the questions from 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.  
 Write your answers in the spaces provided in this question paper.  
 Candidates should answer the questions in English.*

**Section A**

**For Examiner's Use Only**

Question	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	Total Score
Marks																

**Section B**

Question	16	17	18	19	Total Score
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 (60 marks)**

*Answer ALL questions in this section.*

1. (a) Define the following terms:

(i) Mechanical vector.

(1 mark)

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(ii) Intermediate host.

(1 mark)

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(b) Name the infective stage of the following parasites:

(i) *Trichomonas vaginalis*;

(1 mark)

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(ii) *Trypanosoma cruzi*.

(1 mark)

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2. Blood specimen from a patient suspected of malaria infection requires to be transported overnight from Kisumu county to Kenyatta National Hospital. Describe the proper care of the specimen after drawing blood from the patient. (4 marks)

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3. (a) State the principle behind zinc sulphate concentration technique. (2 marks)

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(b) For each of the following parasites, state the **most** suitable concentration technique to be used in parasite identification.

(i) *Strongyloides stercoralis*

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(ii) *Ascaris lumbricoides*.

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(2 marks)

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

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5. Describe the microscopic appearance of hookworm eggs. (4 marks)

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6. State measures of prevention and control of *Taenia saginata* infection. (4 marks)

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7. Outline using a flow diagram the life cycle of *Onchocerca volvulus*. (4 marks)

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11. Describe **one** fault due to an incorrect tilt of a microtome knife that may occur during sectioning. (4 marks)

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12. Describe fixing of a papanicolaou smear. (4 marks)

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13. State any **four** characteristics of an ideal mounting media. (4 marks)

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14. Outline methylene blue staining of sputum specimen for cytological observation. (4 marks)

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15. Name:

(a) **Four clearing agents;**  
(b) **Four dehydrating agents**  
used in permanent tissue preparation. (4 marks)

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**SECTION B (40 marks)**

*Answer any TWO questions from this section.*

16. (a) Outline Xenodiagnosis of the Chaga's disease. (8 marks)
- (b) State any **seven** measures to prevent and control visceral leishmaniasis. (7 marks)
- (c) Outline the concentration technique in laboratory diagnosis of *Paragonimus Westermani*. (5 marks)
17. (a) Differentiate the morphological features of *Wuchereria bancrofti* from those of *Brugia Malayi*. (5 marks)
- (b) Outline the transmission and life cycle of *Trypanosoma rhodesiense*. (10 marks)
- (c) Draw a labelled diagram of a trophozoite of *Balantidium coli*. (5 marks)
18. (a) State any **two** advantages and disadvantages of decalcification by the use of EDTA. (4 marks)
- (b) (i) Name the ingredients of glycerine Jelly aqueous mountant. (4 marks)
- (ii) Explain how the above aqueous mountant is prepared and used. (6 marks)
- (c) Draw and name any **three** cross-section (profile) of microtome knives. (6 marks)
19. (a) In spite of correct attachment technique of sections on slide, a Histologist noted that sections become partly or completely detached from slides as staining process progressed.
- (i) State **three** possible causes of the above observation. (3 marks)
- (ii) Explain the preparation of Mayers egg albumin used as adhesive material for sections. (7 marks)
- (b) Explain the use of Perls' Prussian blue staining method. (4 marks)
- (c) State any **six** functions of epithelium tissues. (6 marks)