Name:_____ Index No:_____/_____

2426/103B
2427/103
APPLIED SCIENCE
Oct/Nov. 2015
Time: 3 Hours

Candidate's Signature:_____

Date:_____

THE KENYA NATIONAL EXAMINATIONS COUNCIL

DIPLOMA IN DIETETICS MANAGEMENT
MODULE I

APPLIED SCIENCE
MICROBIOLOGY AND PARASITOLOGY
ANATOMY AND PHYSIOLOGY

3 Hours

INSTRUCTIONS TO CANDIDATES

Write your name and index number in the spaces provided above.
Sign and write the date of the examination in the spaces provided above.
*This paper consists of **TWO** sections; **A** and **B**.*
*Answer **ALL** the questions in section **A** and any **THREE** questions from section **B** in the spaces provided in this question paper.*
*Each question in section **A** carries 4 marks while each question in section **B** carries 20 marks.*
Candidates should answer the questions in English.

For Examiner's Use Only

SECTION A

Question	1	2	3	4	5	6	7	8	9	10	TOTAL SCORE
Candidate's Score											

SECTION B

Question	11	12	13	14	15	TOTAL SCORE
Candidate's Score						

Grand Total

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.

Turn over

SECTION A (40 marks)

Answer ALL the questions in this section in the spaces provided.

1. Name the microorganisms used in making of each of the following:

   (a) yoghurt; (2 marks)

   (b) bread; (1 mark)

   (c) renin used in cheese production. (1 mark)

2. Describe how a stool sample is cultured for Shigellae diagnosis. (4 marks)

3. State the factors which determine the numbers and types of microorganisms in a food. (4 marks)

4. (a) List **three** genus of gram negative aerobic microorganisms associated with spoilage of fresh cut meats in the refrigerator. (3 marks)

(b) Name the bacteria favoured by high concentration of nitrites in meat. (1 mark)

5. (a) Describe the manifestation of food spoilage of vacuum packed meats. (2 marks)

(b) State the reasons why curved bacon is resistant to spoilage. (2 marks)

6. Explain mold spoilage of raw vegetables. (4 marks)

7. For each of the following parasites, state the site of their infection in a human being and their infective stage:

(4 marks)

(a) *Giardia lamblia;*

(b) *Trypanosoma cruzi;*

(c) *Plasmodium falciparum;*

(d) *Trichomonas vaginalis.*

8. State the functions of the following components of synovial joints:

(a) ligaments;

(1 mark)

(b) tendon;

(1 mark)

(c) synovial fluid;

(1 mark)

(d) articular cartilage.

(1 mark)

9. Distinguish between nervous and gastric phase control mechanism of gastric secretion in the stomach. (4 marks)

10. Differentiate between sperm and ovum gametes in human reproduction. (4 marks)

SECTION B (60 marks)

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

11. (a) Discuss traveler's diarrhoea under the following headings:

(i) causal agent and its characteristics; (8 marks)

(ii) pathogenicity. (8 marks)

(b) Explain why eating of raw oysters may be risky especially to immuno compromised individuals. (4 marks)

12. (a) Differentiate between food poisoning and food borne infection. (2 marks)

(b) Outline Staphylococcal food poisoning. (18 marks)

13. (a) Use diagrams to show the distinguishing features among the following parasites; *Schistosoma haematobium; S mansoni and S japonica.* (6 marks)

(b) Outline the life cycle of the infective *Strongyloides stercoralis*. (11 marks)

(c) Describe prevention of *S stercoralis* infection. (3 marks)

14. (a) The table below refers to four hormones associated with human menstrual cycle. Complete the table by ticking (√) or (×) to indicate whether it is correct statement or not. (8 marks)

Hormone		**Secreted by ovaries**	**Reached highest level in blood before ovulation**
(i)	Follicle stimulating hormone (FSH)		
(ii)	Leteinising hormone (LH)		
(iii)	Oestrogen		
(iv)	Progesterone		

Table 1

(b) Outline the transport mechanism involved in exchange of substances between mother and foetus. (12 marks)

15. (a) Draw a labelled diagram of a synapse as seen under an electron microscope. (10 marks)

(b) Figure 1 illustrates a knee joint. Label parts (i) to (x). (10 marks)

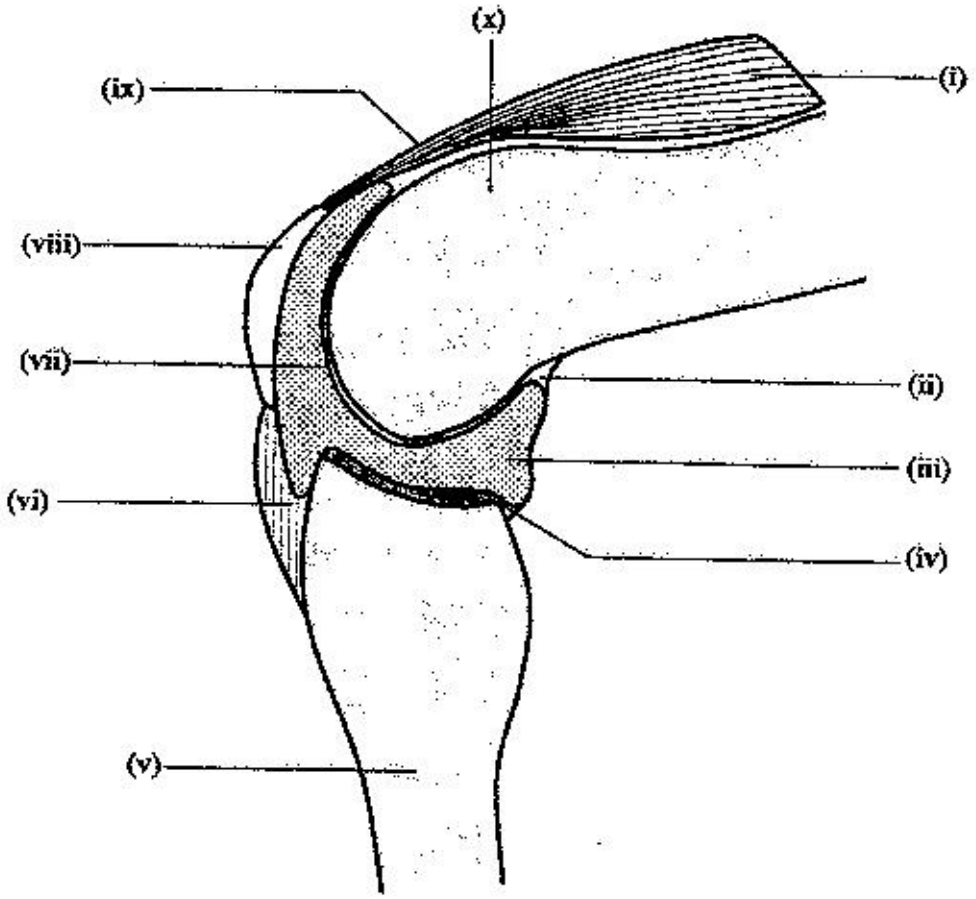

Fig. 1