

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

2404/304  
BIOCHEMISTRY, ANATOMY  
AND PHYSIOLOGY  
Oct/Nov 2012  
Time: 3 hours

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

Date: \_\_\_\_\_



**THE KENYA NATIONAL EXAMINATIONS COUNCIL**

**DIPLOMA IN APPLIED BIOLOGY**

BIOCHEMISTRY, 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 examination in the spaces provided above.  
You should have a scientific calculator for this examination.  
This paper consists of **TWO** sections: **A** and **B**.  
Answer **ALL** 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.  
Maximum marks for each part of a question are indicated.

**SECTION A**

For Examiner's Use Only

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

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.

1. (a) List any **two** digestive enzymes produced by accessory glands. (2 marks)

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- (b) Name the types of joints found between the following bones.

- (i) Vertebral bones (1 mark)

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- (ii) Cranial bones (1 mark)

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2. Explain why carbon monoxide is considered to be one of the most dangerous respiratory poisons. (4 marks)

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3. Explain the process of blood clotting. (4 marks)

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4. Explain how the distribution of auxin affects geotropism. (4 marks)

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5. Draw a labeled longitudinal section of a chloroplast. (4 marks)

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6. Distinguish between the following:

(a) DNA and RNA;

(2 marks)

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(b) Fats and oils.

(2 marks)

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7. State any **four** differences between hormonal and nervous system of communication.

(4 marks)

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8. List any **four** dynamic functions of proteins. (4 marks)

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9. With the aid of structural formula explain how lipids are formed. (4 marks)

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10. Describe the concept of photorespiration in plants. (4 marks)

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SECTION B (60 marks)

Answer any **THREE** questions from this section.

11. (a) Draw a labelled cross section diagram of a young dicot root. (4 marks)  
(b) Describe mechanisms of translocation in plants. (16 marks)
12. (a) Explain how urine is formed in the nephrons of the kidney. (10 marks)  
(b) Describe the regulation of blood sugar in man. (10 marks)
13. (a) Explain how an impulse is transmitted across the synapse. (10 marks)  
(b) Describe the process of fertilization in flowering plants. (10 marks)
14. Describe any **five** reactions that monosaccharides can undergo in the body. (20 marks)
15. (a) Draw the structural formula of an amino acid molecule. (4 marks)  
(b) Describe the glycolytic breakdown of glucose. (16 marks)

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