2528/103
2922/103
ENVIRONMENTAL BIOLOGY
June/July 2020
Time: 3 hours

THE KENYA NATIONAL EXAMINATIONS COUNCIL

DIPLOMA IN ENVIRONMENTAL SCIENCE AND TECHNOLOGY

MODULE I

ENVIRONMENTAL BIOLOGY

3 hours

INSTRUCTIONS TO CANDIDATES

You should have the following for this examination:
Answer booklet;
Non-programmable scientific calculator.
*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 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 as 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. Define each of the following terms:

   (a) classification; (2 marks)

   (b) taxonomy. (2 marks)

2. List **four** functions of a nucleus of an animal cell. (4 marks)

3. Draw a labelled diagram describing the chloroplast of a plant cell. (4 marks)

4. Differentiate between somatic cell and gamete cell. (4 marks)

5. (a) Define nucleotides as used in genetics. (2 marks)

   (b) Name **two** structural components of a nucleotide. (2 marks)

6. State **four** characteristics of class insecta that differentiate it from other classes of organisms. (4 marks)

7. Name **four** gaseous pollutants released by manufacturing industries. (4 marks)

8. State **four** factors which contribute to land degradation in Kenya. (4 marks)

9. List **four** factors that affect formation of tissue fluids in human beings. (4 marks)

10. Draw a labelled diagram of a neuron. (4 marks)

SECTION B (60 marks)

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

11. (a) Describe the **three** steps of transcription in protein synthesis. (6 marks)

    (b) Explain the **three** processes undergone by messenger ribonucleic acid (mRNA) before it leaves the nucleus during protein synthesis. (6 marks)

    (c) Describe **four** properties of genetic codes. (8 marks)

12. (a) Define sedimentary cycle. (2 marks)

(b) With the aid of a labelled diagram, describe the sulphur cycle. (18 marks)

13. (a) State **six** differences between nervous system and endocrine system. (12 marks)

(b) With the aid of a diagram, describe the blood glucose regulation cycle in the human body. (8 marks)

14. (a) (i) Define the term deforestation. (2 marks)

(ii) List **four** causes of deforestation in Kenya. (4 marks)

(iii) State any **four** effects of deforestation in Kenya. (4 marks)

(b) (i) Define the term desertification. (2 marks)

(ii) Explain the **four** main causes of desertification in Kenya. (8 marks)

15. (a) Explain **four** reasons why scientists classify organisms. (8 marks)

(b) Describe the **four** rules adopted in binomial nomenclature of organisms. (8 marks)

(c) Give the scientific name of each of the following:

(i) man; (2 marks)

(ii) domestic dog. (2 marks)

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