Biology 2

710

CAMEROON GENERAL CERTIFICATE OF EDUCATION BOARD

General Certificate of Education Examination

JUNE 2012 ADVANCED LEVEL

Subject Title	Biology
Paper No./Title	Paper 2
Subject Code No.	710

THREE HOURS

Answer any FIVE questions.

All questions carry equal marks. Marks allocated to parts of questions are indicated in brackets.

Illustrate your answer wherever desirable with large, clear, fully labelled diagrams.

You are reminded of the necessity of good English and orderly presentation in your answers.

1. (a) What is asexual reproduction? (3 marks)
   (b) (i) Using named example, describe
   - budding
   - parthenogenesis
   - cloning. As method of asexual reproduction in animals. (9 marks)
   (ii) Why do most animals not reproduce asexually? (3 marks)
   (c) Differentiate between sexual and asexual reproduction. (5 marks)

(Total = 20 marks)

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2. The metabolism of cells is made up of thousands of different reactions whose direction is not random.
   (a) What role is played by enzymes in maintaining this regulation? (10 marks)
   (b) (i) What is an active site?
   (ii) What possible events at the active site enhance the reaction? (10 marks)

(Total = 20 marks)

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3. (a) What is meant by an ecosystem? (3 marks)
   (b) Define the following terms as used in ecological studies:
   (i) Ecological niche (ii) Trophic level (iii) Biological control (13 marks)
   (c) How are detritivores and decomposers significant in an ecosystem? (4 marks)

(Total = 20 marks)

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4. (a) (i) What is immunity? (2 marks)
   (ii) Distinguish between passive and active immunity (8 marks)
   (b) Describe the role played by:
   (i) Leucocytes and (6 marks)
   (ii) Antibodies in the immune system (4 marks)

(Total = 20 marks)

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5. (a) What are the principal characteristics of genetic materials? (4 marks)
   (b) How does the DNA molecule satisfies such characteristics? (8 marks)
   (c) How does HIV destroy the human immune system? (8 marks)

(Total = 20 marks)

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6. (a) Differentiate between chemical and nervous coordination. (4 marks)
   (b) Write short notes on each of the following:
   (i) Resting potential. (4 marks)
   (ii) All-or-nothing law. (4 marks)
   (iii) Speed of transmission of impulses. (4 marks)
   (iv) Synaptic transmission. (4 marks)

(Total = 20 marks)

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7. (a) Give an account of the factors that may affect the affinity of haemoglobin for oxygen (7 mks)
   (b) How is it possible for haemoglobin to carry oxygen and carbon dioxide? (7 marks)
   (c) (i) Why is carbon monoxide toxic? (3 marks)
   (ii) What is meant by chloride shift? (3 marks)

Total = 20 marks)

8. (a) Explain the meaning of the following terms:
   (i) Heterosomes (2 marks)
   (ii) Heterogametic (2 marks)
   (iii) Genetically empty chromosomes. (2 marks)

   (b) Colour blindness in human is sex linked and controlled by a recessive gene. A colour blind female is crossed with a normal male. What phenotype do you expect among the offspring of crosses between:
   (i) The F_1 female and a male of the same genotype as her father? (7 marks)
   (ii) An F_1 male and a female of the same genotype as his mother? (7 marks)

Total = 20 marks)