

FOCUS A365

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FORM 4 TERM 2 BIOLOGY EXAMINATIONS 2018

Name..... Adm. No.....

Answer all questions in the spaces provided

1. The diagram below represents the nitrogen cycle

a) State the process labelled (2mks)

A

D

b) Name the compound represented by B (1mk)

c) Name the group of organism represented by C (1mk)

d) i) Name the group of plants which promote process A (1mk)

ii) State the part of the plant where process A takes place (1mk)

e) How would excessive pesticides interfere with process A? (2mks)

2. The diagram below represents the lower jaw of mammal

a) Name the mode of nutrition of the mammal whose jaw is shown (1mk)

b) State the structural and one functional difference between the teeth labelled J and L

Structural: (1mk)

Functional: (1mk)

c) i) Name the toothless gap labelled K (1mk)

ii) State the function of the gap named in (C) (i) above (1mk)

d) Name the substance which is responsible for hardening the teethe (1mk)

3. In humans, hairy ears is a condition controlled by a gene on the Y chromosome.

- a) Using letter Y^H to represent the chromosome carrying the gene for hairy ears, work out a cross between a hairy eared man and his wife (4mks)
- b) i) What is the probability of girls having hairy ears? (1mk)
- ii) Give a reason for your answer in (b)(i) above (1mk)
- c) Name two disorders in humans that are determined by sex-linked genes (2mks)
- d) Explain how comparative embryology is an evidence for organic evolution (2mks)
4. The diagram below illustrates the structure of a kidney nephron

a) i) Name the part labelled E (1mk)

b) How is the part labelled F adapted to its function? (4mks)

c) State three physiological mechanisms of controlling the human body temperatures during a cold day (3mks)

5. A response exhibited by a certain plant is illustrated below

a) i) Name the type of response (1mk)

ii) Explain how the response named in (a)(i) above occurs (3mks)

b) what is the importance of tactic response to microscopic plants? (1mk)

- c) State the application of plant hormones in agriculture (3mks)

Answer question 6 (compulsory) and either question 7 or 8 in the spaces provided after question 8

6. A scientist carried out an investigation to find out the population growth of mice under laboratory conditions. Twenty young mice were placed in a cage. The results obtained from the investigation were as shown in the table below.

Time in months	0	2	4	6	7	10	12	16	18
Number of mice	20	20	65	115	310	445	450	145	160

- a) On the graph paper provided, draw the graph of the number of mice against time (6mks)
- b) Account for the changes in mice population between
- 0 to 2 months (2mks)
 - 2 to 6 months (2mks)
 - 6 to 10 months (2mks)
 - 10 to 12 months (2mks)
- c) i) Between which two months was the population change greatest?(1mk)
- ii) Calculate the rate of population change over the period (c)(i) above (2mks)

- d) What change in population would be expected if the investigation was continued to 19th month? (1mk)
- e) To obtain the observed results, state two variables that were kept constant during the investigation (2mks)
7. a) Describe the process of blood clotting in human being (10mks)
- b) How are respiratory surfaces in mammals adapted to their functions? (10mks)
8. Describe how xerophytes are adapted to living in their habitat (20mks)

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