INTERNATIONAL BACCALAUREATE

BIOLOGY

Subsidiary Level

Wednesday 8 May 1991 (afternoon)

Cand. ref. no.

Paper 2

45 minutes

INSTRUCTIONS

This paper contains TWO questions and you should attempt them both. Write your answers in the spaces provided in this question book.

TURN OVER

Question 1

The table below presents data on changes in a mosquito population of a 10 hectares swampy area. The survey was made before, during and after spraying with the insecticide DDT.

	Number of mosquitos × 10⁴ per hectare								
	535	525	530	125	275	265	275	250	450
Day	0	30	60 (1)	90	120	150	180	210 (2)	240

(1) First day of spraying.
(2) Last day of spraying.

(a) Present these results as a graph below.   [3 marks]

Title:
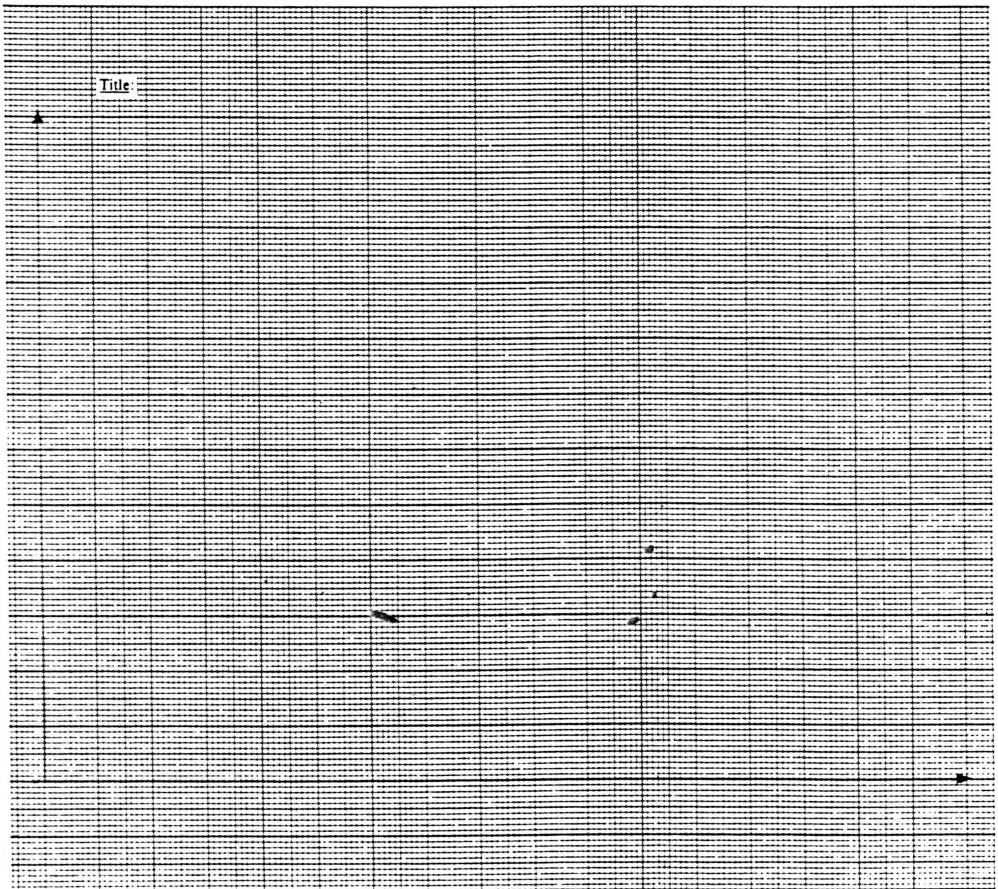
(b) State the change that took place between day 60 and day 90 and explain it.   *[2 marks]*

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(c) Give an explanation for the changes in the population between day 90 and day 120.   *[1 mark]*

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(d) Explain the changes between days 120 and 210. Why doesn't the population reach its initial size?   *[2 marks]*

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(e) What factors can explain the changes in population from day 210 onwards?   *[1 mark]*

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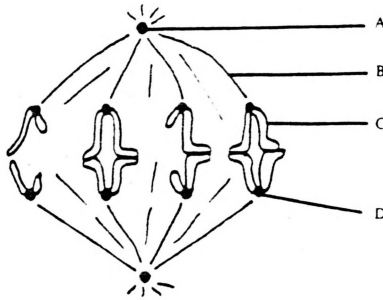
(f) Compare the changes in population number between days 90 and 120 with those between days 210 and 240. Give an explanation for this difference.   *[1 mark]*

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Question 2

The diagram below was taken from the laboratory report of a student who had been observing nuclei undergoing mitosis.

(a) Identify the structures labelled A, B, C and D on the diagram.   *[2 marks]*

Structure A ....

Structure B ....

Structure C ....

Structure D ....

(b) What is the chromosome number of the organism from which this nucleus came?   *[1 mark]*

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(c) At what stage of mitosis was the nucleus when the diagram was made?   *[1 mark]*

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(d) Describe what is happening at this stage of mitosis.   *[2 marks]*

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