

Paper Reference(s)

6103/02 W1

Edexcel GCE

Biology

Biology (Human)

Advanced Subsidiary/Advanced

Unit Test 3 Paper 02 (W1)

Tuesday 16 May 2006 – Morning

Time: 1 hour 20 minutes

Materials required for examination

Answer Book (AB08)
Graph Paper (ASG2)
Ruler

Items included with question papers

Nil

Instructions to Candidates

In the boxes on the answer book provided, write the name of the examining body (Edexcel), your centre number, candidate number, the subject title, the paper reference, your surname, other names and signature.

The paper reference is shown above.

Answer BOTH questions in the answer book.

Show all the steps in any calculations and state the units. Calculators may be used.

Include diagrams in your answers where these are helpful.

Additional answer sheets may be used.

Information for Candidates

The marks for individual questions and the parts of questions are shown in round brackets: e.g. (2).

The total mark for this paper is 32.

Advice to Candidates

You must ensure that your answers to parts of questions are clearly numbered.

You will be assessed on your ability to organise and present information, ideas, descriptions and arguments clearly and logically, taking account of your use of grammar, punctuation and spelling.

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Answer BOTH questions.

1. Flying insects are an important part of the summer diet of many small birds. The population of small birds has been declining in recent years. In order to investigate if this is linked to changes in flying insect populations, motorists were asked to take part in a simple survey.

They were asked to wash their front car number plates to remove any dead insects before starting on a journey. On reaching their destinations, each motorist placed a cardboard quadrat, divided into six separate 4 cm × 4 cm squares, over each front number plate. The number of dead insects in each square was counted and recorded.

During the summer, one motorist submitted results collected on the same journey to work at two-week intervals. Each journey was at the same time of day and at the same average speed.

A copy of her notebook showing the number of dead insects counted in each square of the quadrat is shown below.

Date	Quadrat Square					
	1	2	3	4	5	6
31st May	3	5	2	3	0	4
14th June	6	3	2	5	7	4
28th June	1	0	1	2	1	1
12th July	5	4	6	3	2	2
26th July	4	5	4	4	5	2
9th Aug	6	0	4	4	3	3

- (a) Prepare a table and present the data to show how the total numbers of dead insects within the quadrat varied during the survey. (4)
- (b) Use the information in your table to present the data in a suitable graphical form. (4)
- (c) Using the trends and patterns shown in your graph **and** the variability of the individual raw data measurements, comment on the reliability of this method of assessing the flying insect populations. (3)
- (d) Describe **three** limitations of this technique when used to collect data from many different motorists. (3)

(Total 14 marks)

2. It has been suggested that, after exercise, breathing rates will increase more in people who do little physical exercise compared with those who exercise regularly.

Design an investigation to test this hypothesis.

Your answer should give details under the following headings.

- (a) Plan of the investigation to be carried out. (9)
- (b) Recording of raw data measurements, presentation of results and methods of data analysis. (3)
- (c) Limitations of your method and an indication of further work which could be undertaken. (6)

(Total 18 marks)

TOTAL FOR PAPER: 32 MARKS

END