Version 1.1

Surname		Other Names	
Centre Number		Candidate Number	
Candidate Signature			

For Examiner's Use

General Certificate of Education
SPECIMEN UNIT
Advanced Subsidiary Examination

AQA
ASSESSMENT and QUALIFICATIONS ALLIANCE

ENVIRONMENTAL STUDIES **ENVS1**
Unit 1 The Living Environment

Date and Time

You will need no other materials.
You may use a calculator.

Time allowed: 1 hour

Instructions
- Use black ink or black ball-point pen.
- Fill in the boxes at the top of this page.
- Answer **all** questions.
- You must answer the questions in the spaces provided. Answers written in margins or on blank pages will not be marked.
- Do all rough work in this book. Cross through any work you do not want to be marked.

Information
- The maximum mark for this paper is 60.
- The marks for questions are shown in brackets.
- You are reminded of the need for good English, clear presentation and appropriate use of specialist vocabulary. Question 4(b) should be answered in continuous prose. Quality of Written Communication will be assessed in this answer.

For Examiner's Use			
Number	Mark	Number	Mark
1		5	
2		6	
3			
4			
Total (Column 1) →			
Total (Column 2) →			
TOTAL			
Examiner's Initials			

The specimen assessment materials are provided to give centres a reasonable idea of the general shape and character of the planned question papers and mark schemes in advance of the first operational exams.

There are no questions printed on this page

LEAVE MARGIN BLANK

Answer **all** questions in the spaces provided.

1 (a) Give a reason why each of the following properties of water is important to living organisms.

Property	Importance to living organisms
Good solvent	
Ice is less dense than liquid water	
Transparent	

(3 marks)

1 (b) Explain why the temperature range found on Earth is suitable for the survival of living organisms.

.....

.....

.....

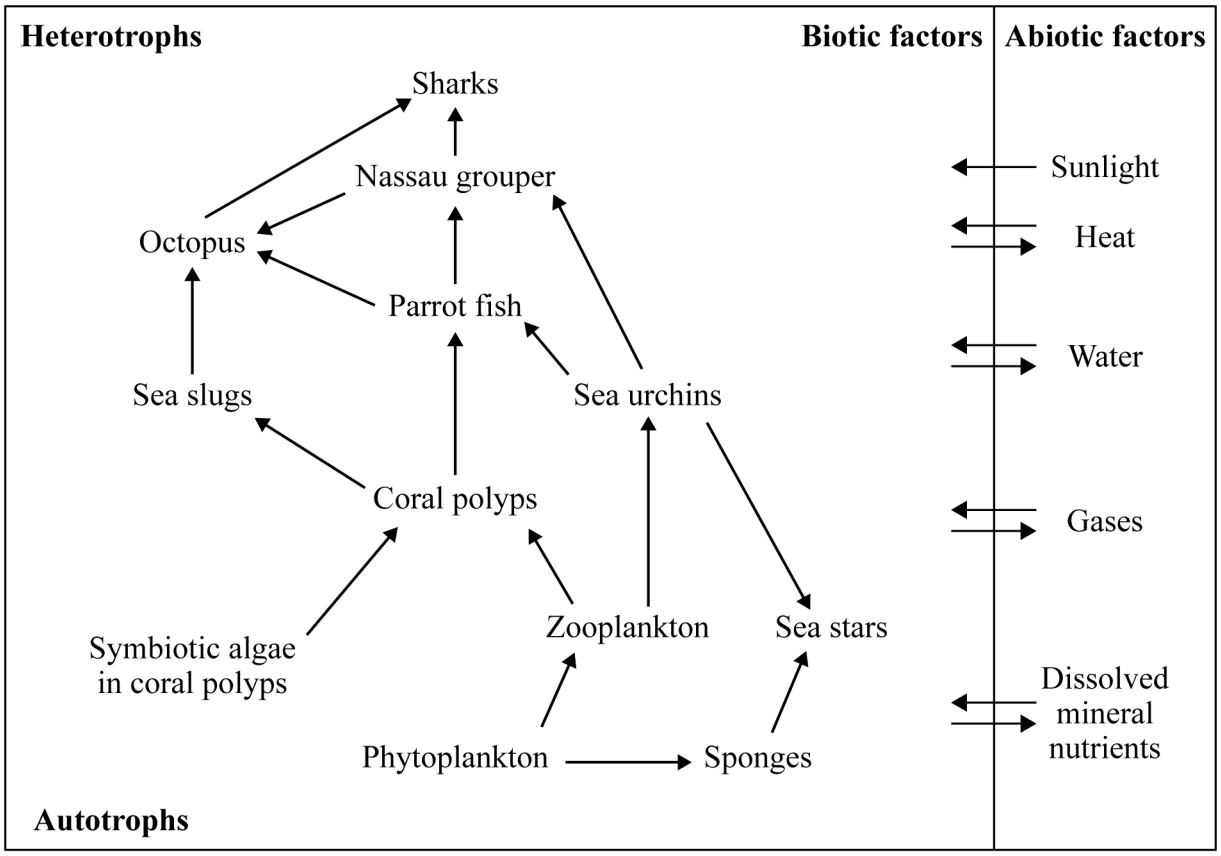
.....

(2 marks)

5

Turn over for the next question

2 The diagram shows a food web on a coral reef in the Caribbean.



2 (a) Use the diagram to explain why a coral reef can be described as an ecosystem.

.....

.....

(1 mark)

2 (b) Describe how human activities may threaten coral reef ecosystems.

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....

(5 marks)

2 (c) Explain how the conservation of coral reefs may result in economic benefits for local communities.

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....

(4 marks)

10

Turn over for the next question

3 The tiger (*Panthera tigris*) is an endangered species. Since the turn of the century, its numbers have been reduced by up to 95%.

3 (a) Explain the term *endangered*.

.....

.....

(1 mark)

3 (b) In the early 1970s '*Project Tiger*' was begun in India to establish nature reserves and undertake other conservation measures. The table shows estimates of tiger populations in India from 1973 to 2000.

Tiger Population in India	**1973**	**1980**	**1990**	**2000**
In tiger reserves	310	730	1330	1510
Outside tiger reserves	1520	2300	3100	2250

Use the information in the table to assess the importance of reserves for tiger conservation.

.....

.....

.....

.....

(2 marks)

3 (c) Describe the ways in which the extinction of animal species may reduce the survival of plants.

.....

.....

.....

.....

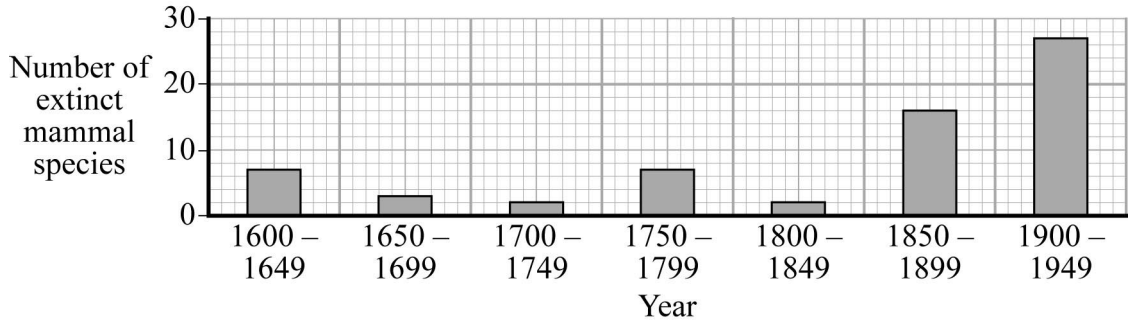
.....

.....

(3 marks)

3 (d) The background extinction rate of mammals, ie the rate at which mammalian species naturally become extinct, has been estimated as one extinction per 100 – 1000 years.

The graph shows known extinctions of mammal species since 1600.



Some human activities deliberately kill wildlife, for example, hunting for food or skins and culling to kill livestock predators.

Outline how human activities can kill wildlife unintentionally.

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....

(4 marks)

10

Turn over ►

4 The golden lion tamarin (*Leontopithecus rosalia*) is a small monkey living in the coastal tropical rain forests of Brazil. Loss of habitat led to it becoming endangered. Following successful captive breeding, it is now being reintroduced into the wild.

4 (a) Explain why captive breeding and release programmes may be unsuccessful.

.....

.....

.....

.....

.....

.....

.....

.....

.....

(4 marks)

4 (b) With reference to suitable examples, explain how habitat management methods can be used to conserve plant and animal species in an existing habitat.

Quality of Written Communication will be assessed in this answer.

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....

(6 marks)

10

Turn over for the next question

There are no questions printed on this page

5 Following a Public Inquiry and a cost benefit analysis, a property developer's proposal to build high density, low cost housing in an area of green belt was rejected.

5 (a) Outline the principles of:

5 (a) (i) *a Public Inquiry*

.....

.....

.....

.....

(2 marks)

5 (a) (ii) *cost benefit analysis*

.....

.....

.....

.....

(2 marks)

5 (a) (iii) *green belts*.

.....

.....

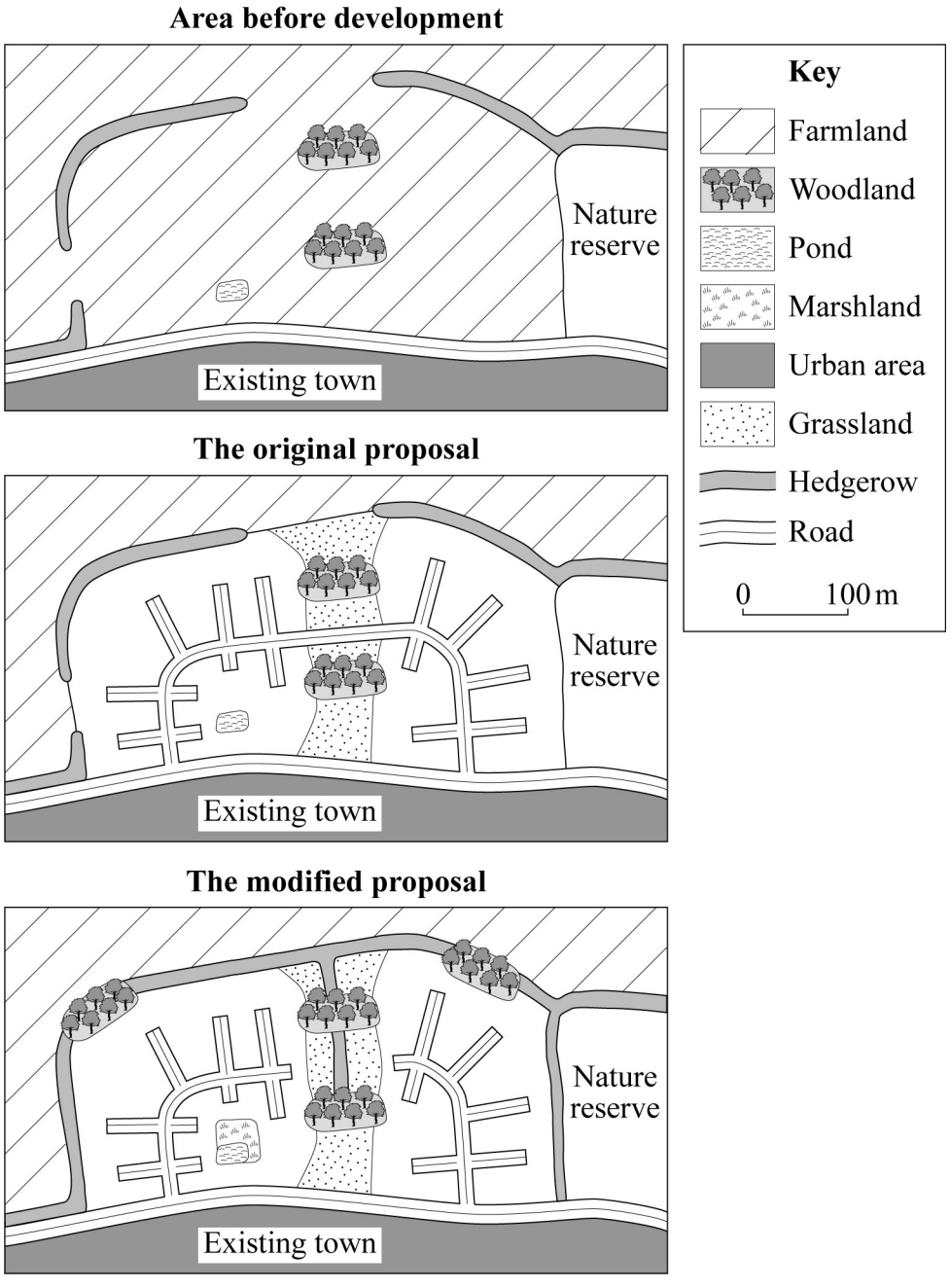
.....

.....

(2 marks)

Question 5 continues on the next page

5 (b) After the original proposal was rejected, the developer carried out an Environmental Impact Assessment (EIA) and modified it.



Explain why the modified proposal may be less environmentally damaging than the original proposal.

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....

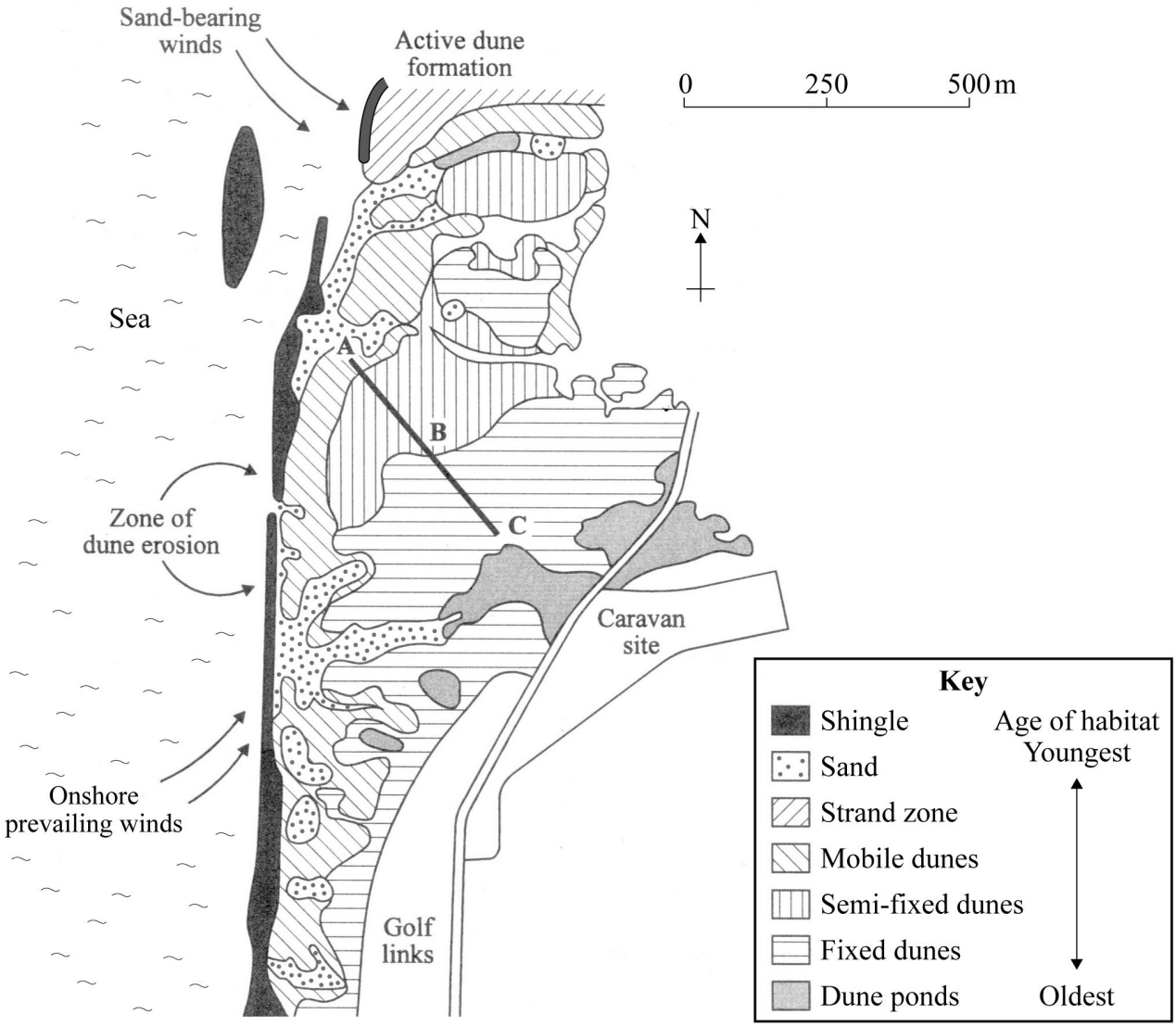
(4 marks)

10

Turn over for the next question

6 **Figure 1** shows a dune system which is part of a National Nature Reserve (NNR).

Figure 1



Source: *The Sand dunes and Saltmarsh of Ynyslas* (Countryside Council for Wales)

6 (a) Suggest a reason why the site was designated as a NNR.

.....

.....

(1 mark)

6 (b) In summer, this site has over 250 000 visitors, close to the carrying capacity of the area.

Define the term *carrying capacity* in this context.

.....

.....

(1 mark)

6 (c) Sand dunes are good sites to observe the stages in ecological succession as sand is blown or washed onshore and the beach builds up.

6 (c) (i) Distinguish between **primary** and **secondary** succession.

.....

.....

.....

.....

(2 marks)

6 (c) (ii) Suggest how large numbers of visitors may increase the area on which secondary succession is taking place.

.....

.....

(1 mark)

Question 6 continues on the next page

6 (d) The position of a transect used to study succession is shown in **Figure 1**. The data in the table were obtained from a sample taken at location **B** on the transect.

Species	Number of plants in sample
Marram grass *(Ammophila arenaria)*	31
Groundsel *(Senecio vulgaris)*	6
Ragwort *(Senecio jacobaea)*	3
Rosebay willow herb *(Epilobium augustifolium)*	1

6 (d) (i) Describe a situation in which a transect is the appropriate ecological sampling technique.

.....

.....

.....

.....

(2 marks)

6 (d) (ii) Use the data in the table to calculate the index of diversity at point **B**.
The formula required is printed below.

The index of diversity may be calculated from the formula:

$$\mathbf{D} = \frac{\mathbf{N(N-1)}}{\sum \mathbf{n(n-1)}}$$

where **D** = index of diversity
$\sum$ = sum of
N = total number of organisms of all species
n = total number of organisms of a particular species.

Show your working.

Answer.....

(2 marks)

6 (d) (iii) Describe how the value of the index of diversity might be expected to change along the transect from point **A** to point **C**.

.....

.....

(1 mark)

6 (d) (iv) Explain why a knowledge of the biodiversity of a habitat is more useful for planning environmental management than just knowing the number of species present.

.....

.....

.....

.....

.....

.....

(2 marks)

6 (e) Explain how time zoning can be used to help wildlife conservation.

.....

.....

.....

.....

.....

.....

(3 marks)

END OF QUESTIONS

15

There are no questions printed on this page

ACKNOWLEDGEMENT OF COPYRIGHT-HOLDERS AND PUBLISHERS
Permission to produce all copyright material has been applied for. In some cases, efforts to contact copyright-holders have been unsuccessful and AQA will be happy to rectify any omissions of acknowledgements in future papers if notified.