OCR
Oxford Cambridge and RSA

H

Friday 17 June 2016 – Morning

GCSE ENVIRONMENTAL AND LAND-BASED SCIENCE

B681/02 Management of the Natural Environment (Higher Tier)

Candidates answer on the Question Paper.

OCR supplied materials:
None

Other materials required:
- Pencil
- Ruler (cm/mm)
- Calculator

Duration: 1 hour

6383381652

B681 02

Candidate forename		Candidate surname	

Centre number						Candidate number				

INSTRUCTIONS TO CANDIDATES

- Write your name, centre number and candidate number in the boxes above. Please write clearly and in capital letters.
- Use black ink. HB pencil may be used for graphs and diagrams only.
- Answer **all** the questions.
- Read each question carefully. Make sure you know what you have to do before starting your answer.
- Write your answer to each question in the space provided. Additional paper may be used if necessary but you must clearly show your candidate number, centre number and question number(s).
- Do **not** write in the bar codes.

INFORMATION FOR CANDIDATES

- The quality of written communication is assessed in questions marked with a pencil (✎).
- The number of marks is given in brackets **[ ]** at the end of each question or part question.
- The total number of marks for this paper is **50**.
- This document consists of **12** pages. Any blank pages are indicated.

BLANK PAGE

PLEASE DO NOT WRITE ON THIS PAGE

Answer **all** the questions.

1 Earthworms are a common organism found in soils.

Which **two** of the following does the earthworm need to survive?

Tick the **two** correct boxes.

A air ☐

B clay ☐

C light ☐

D lime ☐

E moisture ☐

[1]

2 ICT is increasingly being used to monitor and record environmental conditions.

Give **three** advantages of using ICT rather than manual methods.

1 .....

.....

2 .....

.....

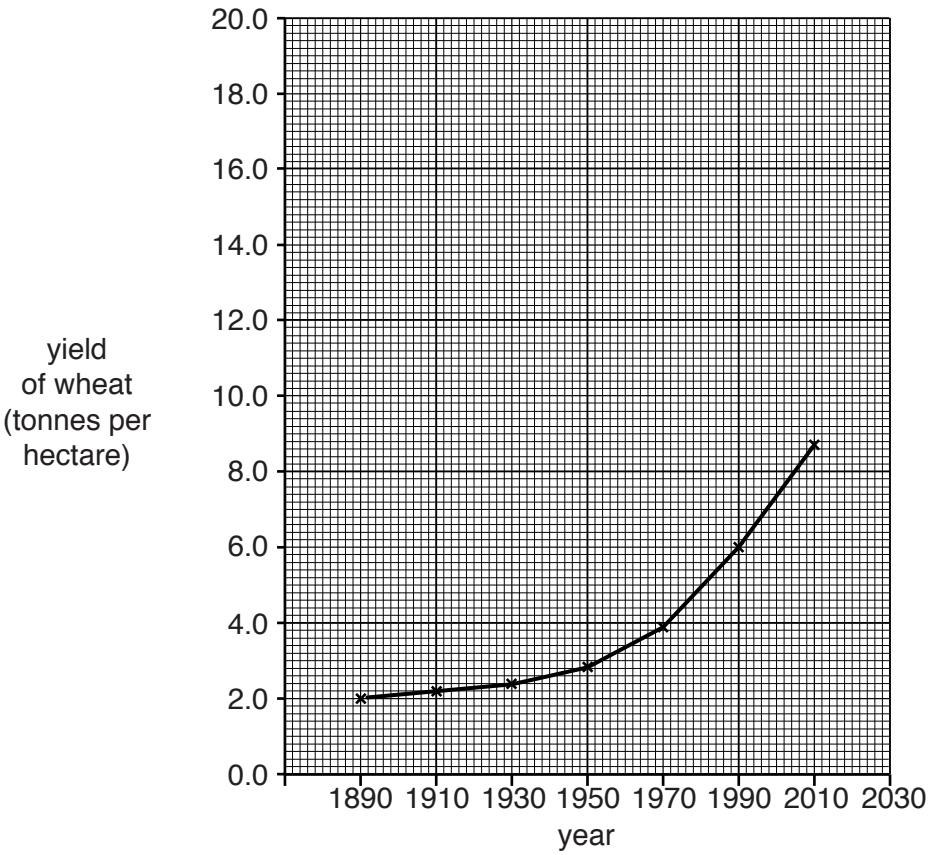
3 .....

.....

[3]

3 The table shows the mean (average) yield of wheat in the UK.

Year	Yield of wheat (tonnes per hectare)
1890	2.0
1910	2.2
1930	2.4
1950	2.8
1970	3.9
1990	6.0
2010	8.7



(a) (i) Use the graph to predict the yield of wheat for 2030.

predicted yield in 2030 = ... tonnes per hectare **[1]**

(ii) Suggest **three** reasons for the large increase in wheat yield in the UK.

Reason 1 .....

.....

Reason 2 .....

.....

Reason 3 .....

.....

[3]

(b) In 2010, experts stated that the mean yield of wheat across the world was only 33.3% of that of the UK.

Calculate the mean yield of wheat across the world in 2010.

mean yield = ... tonnes per hectare **[1]**

(c) Some experts think that we need to increase wheat yield to meet the demands for wheat in the next 30 years.

Give **two** ways a genetically modified (GM) crop might help to meet this increased demand.

1 .....

.....

2 .....

.....

[2]

4 Organic growers use a variety of techniques to control weeds.

Which **one** of the following are they **least** likely to use?

A black polythene

B herbicides

C hoeing

D mulching

Answer **A**, **B**, **C** or **D** ..... **[1]**

5 Water capture systems such as reservoirs are becoming increasingly common on farms and horticultural businesses.

Suggest **two** reasons why an owner or manager might consider this to be a worthwhile investment.

.....

.....

.....

..... **[2]**

6 A builder submits plans for a new housing estate.

The planning officers agree to these plans but insist that the builder also plants trees in the new housing estate.

Describe the benefits of planting trees in the new housing estate.

The quality of written communication will be assessed in your answer to the question.

.....

.....

.....

.....

.....

.....

.....

.....

.....

..... **[6]**

7 The RSPB (Royal Society for the Protection of Birds), Natural England and the RBST (Rare Breeds Survival Trust) are examples of conservation organisations.

Use examples from a conservation organisation that you have studied to show how conservation differs from preservation.

.....

.....

.....

.....

.....

..... **[3]**

8 The land-based industries have some of the highest accident and fatality rates of all industries in the UK.

Give reasons why this might be the case **and** suggest how the sector can address these issues.

The quality of written communication will be assessed in your answer to the question.

.....

.....

.....

.....

.....

.....

.....

.....

.....

..... **[6]**

9 A survey took place on the condition of SSSIs (Sites of Special Scientific Interest) in England.

How this survey rated the status of the sites is given in the table below.

Status of SSSI	**Good**	**Poor – improving**	**Poor – no change**	**Poor – getting worse**	**Partially destroyed**	**Destroyed**
Area (ha)	1 038 639	407 578	631 061	26 111	17 894	143

(a) (i) Calculate the area of the SSSIs **not** rated as good or improving.

..... ha **[1]**

(ii) Using your answer to **(i),** calculate the percentage of the total SSSI area that this represents.

Show your working.

..... % **[2]**

(b) What do the information in the table and your calculations suggest about the condition of English SSSIs?

.....

.....

.....

..... **[2]**

10 A holiday park company has purchased some land containing a disused quarry and some mature woodland.

The company intends to develop a holiday park containing log cabins, and sports and leisure facilities on the site.

Local protestors are against the plan as it would affect local habitats.

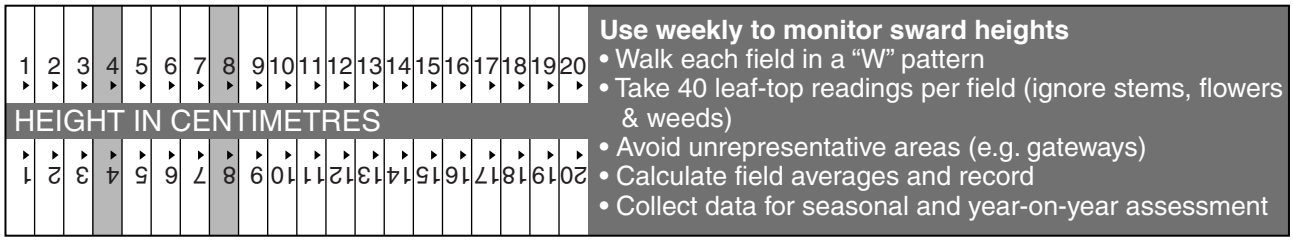
In the table below, give **two** ways this development might damage local habitats.

Suggest **two** methods to reduce this damage.

Damage to local habitat	Method to reduce damage

[4]

11 A farmer has a tool to measure the height of grass (sward) in a field.
This helps the farmer to decide when to move livestock between fields.



Describe the impacts on a field if the farmer did not move the livestock at the correct time.

.....

.....

.....

.....

.....

..... **[3]**

12 A farm has recently been sold. The land had previously been managed using a crop rotation system that included legumes.

The new owners have decided to manage the land differently. They will use a monoculture but do nothing else to improve the soil.

Describe the impact their decision may have on a crop immediately and in future years.

.....

.....

.....

.....

.....

..... **[3]**

13 Many countries, including the UK, are facing potential energy shortages in the future as fossil fuels run out.

Describe, with specific examples, how the land-based industries might help to meet future energy needs.

The quality of written communication will be assessed in your answer to the question.

.....

.....

.....

.....

.....

.....

.....

.....

.....

..... **[6]**

END OF QUESTION PAPER