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**SECTION A**

**Answer ALL the questions in Section A. Write your answers in the spaces provided.**

**You are advised to spend no more than 20 minutes on this section.**

**For Questions 4(a) and 5, choose an answer A, B, C or D and put a cross in the box (☒). If you change your mind, put a line through the box (☒) and then mark your new answer with a cross (☒).**

1. Was it the discovery of antibiotics **or** the invention of the light bulb that led to a scientific revolution?

Explain why.

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**Q1**

**(Total 2 marks)**





3. Suggest **two** advantages and **two** disadvantages of street lighting in cities, towns and villages.

Advantages

1 .....

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2 .....

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Disadvantages

1 .....

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2 .....

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(Total 4 marks)

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Q3



<p>4. A newspaper headline stated “Scientists prove bumblebees can’t fly!”.</p> <p>(a) This is an <b>incorrect</b> statement because:</p> <ul style="list-style-type: none"> <li><input type="checkbox"/> A scientists can prove anything</li> <li><input type="checkbox"/> B scientists cannot explain how any insect flies</li> <li><input type="checkbox"/> C bumblebees do not have feathers</li> <li><input type="checkbox"/> D it is easy to observe that bumblebees can fly</li> </ul> <p style="text-align: right;">(1)</p> <p>(b) Explain why a newspaper headline on a science item can be misleading.</p> <p>.....</p> <p>.....</p> <p>.....</p> <p>.....</p> <p>.....</p> <p>.....</p> <p style="text-align: right;">(2)</p> <p style="text-align: right;"><b>(Total 3 marks)</b></p>	<p>Leave blank</p> <p style="text-align: center;">Q4</p> <div style="border: 1px solid black; width: 20px; height: 20px; margin: 0 auto;"></div>
<p>5. At sea level, pure water boils at 100°C.</p> <p>This is an example of a scientific:</p> <ul style="list-style-type: none"> <li><input type="checkbox"/> A hypothesis</li> <li><input type="checkbox"/> B observation</li> <li><input type="checkbox"/> C paradigm</li> <li><input type="checkbox"/> D theory</li> </ul> <p style="text-align: right;">(Total 1 mark)</p>	<p style="text-align: center;">Q5</p> <div style="border: 1px solid black; width: 20px; height: 20px; margin: 0 auto;"></div>



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**Turn over for Section B**



M 2 6 0 8 9 A 0 7 1 6

7

**Turn over**

**SECTION B**

**Answer ALL the parts of Question 7. Write your answers in the spaces provided.**

**Read the Source on the separate insert and answer the following questions.**

**For Questions 7(a) and (b), choose an answer A, B, C or D and put a cross in the box (☒). If you change your mind, put a line through the box (☒) and then mark your new answer with a cross (☒).**

7. (a) “Scientists have found that good dancing is also a sign of genetic perfection.”  
(lines 2–3)

Which **one** of the following explanations best justifies this statement?

- A It is a fact that Charles Darwin linked dancing and genetic perfection.
  - B It is a fact that people admire the dancing ability of others.
  - C Good dancers have a greater degree of body symmetry.
  - D Scientists have made a very detailed set of bodily measurements on body symmetry.
- (1)**

- (b) “The scientists found that symmetrical males were judged by females to be significantly better dancers.” (lines 24–25)

This is an argument based on:

- A induction
  - B analogy
  - C deduction
  - D authority
- (1)**





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For Question 7(c), choose **TWO** of the answers **A, B, C, D** or **E** and put a cross in the boxes (☒). If you change your mind, put a line through the box (☒) and then mark your new answer with a cross (☒).

(c) Which **two** of the following statements from the source are examples of opinion?

- A** "... the universal human need to dance is part of an evolutionary phenomenon known as sexual selection" (**paragraph 1**)
- B** "... dancing is indeed linked to physical well-being ..." (**paragraph 2**)
- C** "... dance may have evolved to be so important in human culture ..." (**paragraph 3**)
- D** "The videos were carefully edited to eliminate any obvious signs of symmetry." (**paragraph 4**)
- E** "... the most detailed set of bodily measurements on symmetry available for any group of human beings" (**paragraph 5**)

(2)

(d) The conclusion to this source is that there is a scientific explanation for the sexiness of a person's dancing.

Using **three** pieces of evidence from the source, show how this conclusion is justified.

Explain in each case whether the evidence is **fact** or **opinion** and why.

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**Turn over for Section C**



SECTION C

There are three questions in this section. You should answer ONE of them. Write your answer in the space provided.

Put a cross in the box indicating the question you have chosen (☒).  
If you change your mind, put a line through the box (☒) and then put a cross in the other box (☒).

You are reminded that an appropriate conclusion to your argument is required.  
In answering the question you should consider arguments for and against the statement.

Chosen question number:    Question 8 ☒    Question 9 ☒    Question 10 ☒

8. It is possible to vaccinate people against several dangerous and easily transmitted diseases.  
The risk involved with these vaccinations is very small.

Examine the arguments **for** and **against** compulsory vaccination for everyone.

(17)

9. Science has been described as simply ‘organised knowledge’. If this is true, scientists have to be good organisers of knowledge.

Assess arguments **for** and **against** these descriptions of science and scientists.

(17)

10. Carbon dioxide is the principal greenhouse gas causing global warming and climate change.

Carbon dioxide is not produced in nuclear reactors that are used to generate electricity.

Consider arguments **for** and **against** the suggestion that all countries should, in the light of this statement, use nuclear power to generate electricity.

(17)

Quality of Written Communication

(3)

(Total 20 marks)









