

Answer ALL questions in Sections A and B, and ONE question from Section C.

SECTION A

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

1. Give **one** example of a medical problem arising from the easy availability of international air travel.

(Total 1 mark)

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Q1

2. Marie Curie carried out research on the element radium at the end of the 19th century. She showed that there are rays that come out of atoms of radium. The rays are formed of particles and in the process the atoms of radium turn into atoms of different elements.

In what way were these findings a revolution in science?

(Total 2 marks)

Q2



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3. The first child in a family was born with a genetic disease. The parents later decided to have another baby. They asked doctors to help them by using IVF and selecting an embryo which could be used to provide special cells that they hoped would cure their first child.

Explain **one** reason why this request could be said to be **ethical**, and explain **one** reason for deciding that it is **unethical**.

(Total 4 marks)

Q3

4. A small notice on an electric hand drier in a public toilet says: 'These driers help protect the environment. They save trees from being used for paper towels. They eliminate paper towel waste. They are sanitary and help maintain cleaner facilities.'

In what ways do electric hand driers **damage** the environment?

(Total 3 marks)

Q4



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5. Some scientists say that adding very small amounts of fluoride to water supplies is the cheapest and most effective way of reducing tooth decay in the population as a whole. Others say that because fluoride in small quantities is a toxic (poisonous) substance, adding it to drinking water is an unknown danger to everyone and should not be done.

What information is needed to decide which of these views is correct?

(Total 4 marks)

Q5

6. A mathematically minded friend remarked, 'Every time you drink a glass of water you are swallowing at least one water molecule that passed through the bladder of Oliver Cromwell (died 1658)'.

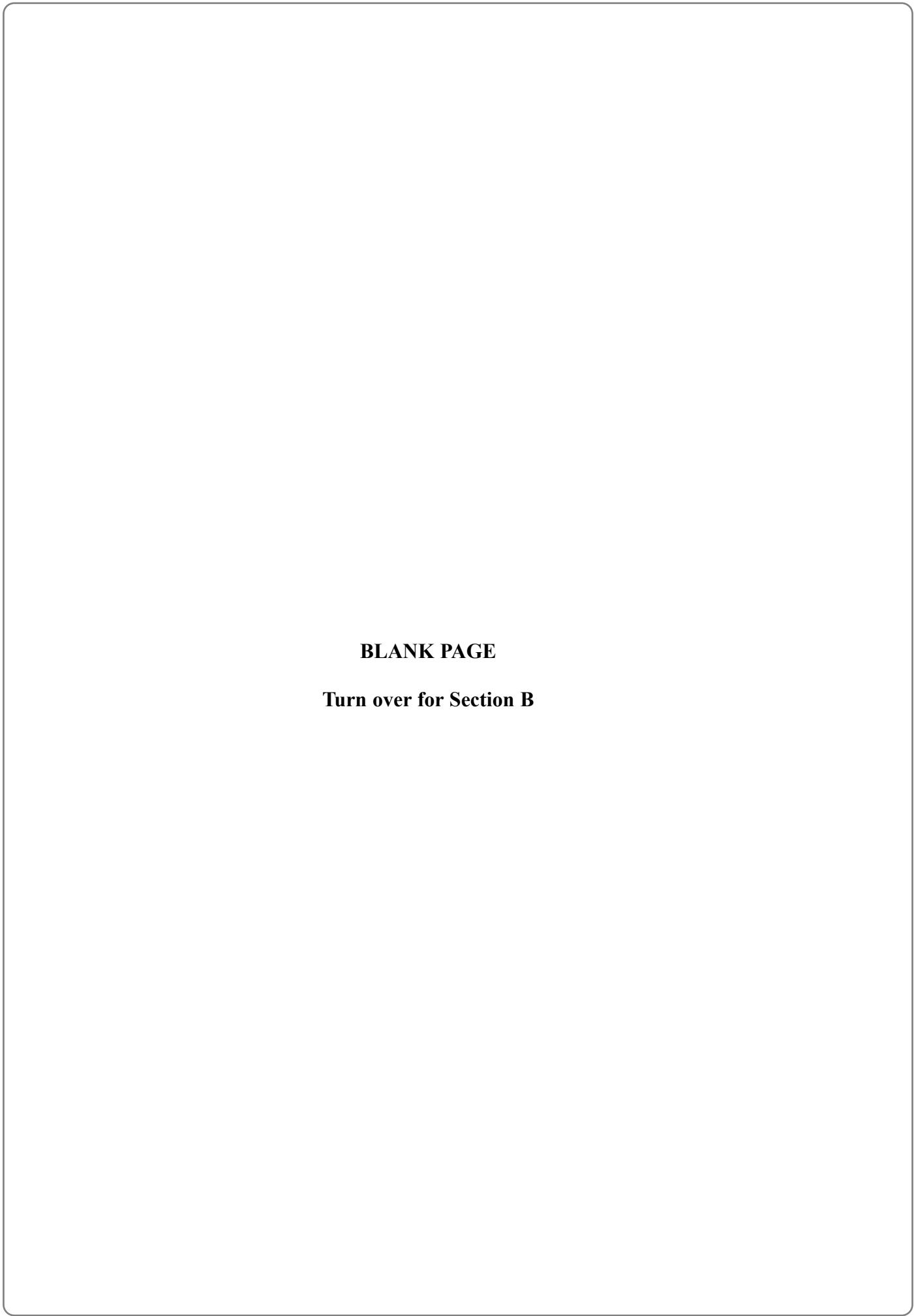
Briefly explain how this remark can be justified.

(Total 3 marks)

Q6

TOTAL FOR SECTION A: 17 MARKS





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Turn over for Section B



M 2 1 5 5 5 B 0 5 1 2



SECTION B

Read the passage on the separate insert and answer the following questions.

**For parts (b) and (d) of Question 7, choose an answer and put a cross in the box (☒).
If you change your mind, put a line through the box (☒) and then put a cross in another box (☒).**

7. (a) Identify and write out **two** facts from the passage that support the view that students' choices of career within veterinary science have changed.

1. _____

2. _____

(2)

(b) Referring to paragraphs 1 and 2, which of the following describes the effect of Rolf Harris's programme?

- A analogy
- B authority
- C correlation
- D fallacy

(1)

(c) Consider the statement "This is not sexist in any way, but the majority of applications for veterinary college places are from women and most of them seem to prefer to work with cuddly animals rather than with farm animals". **(lines 20-22)**

(i) What objective information is given in this statement?

(1)

(ii) Give **two** examples of the ways in which this statement displays subjectivity.

1. _____

2. _____

(2)



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(d) In the last paragraph, a BBC employee argues that, 'If... fewer vets want to work with farm animals then, while regrettable, it's not something that either Rolf or the programme can be held responsible for.' (lines 24-26)

(i) Which **two** of the following measures could help to support the argument?

Put a cross in the boxes that indicate the **two** correct answers.

(1)

- A The proportion of viewers who would like to become vets
- B The proportion of veterinary students who regularly watch Animal Hospital
- C The proportion of viewers who have domestic animals
- D The proportion of vets who trained in the 1970s
- E The proportion of veterinary students who wish to work with farm animals

(ii) Explain how the two proportions you have chosen could be used to support the argument.

(3)

There will be additional marks for quality of written communication.

(3)

(Total 13 marks)

Q7

TOTAL FOR SECTION B: 13 MARKS



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SECTION C

**There are three questions in this section. You should answer ONE of them.
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.**

- 8.** ‘Scientists must not be blamed for the future technological applications of their work.’

Examine this statement. You may wish to refer to technological applications such as nuclear weapons, genetic modification, or any others.

(17)

- 9.** The discovery of the molecular structure of DNA in 1953 was credited to two scientists. The working out of the complete genetic structure of the human genome was carried out by thousands of scientists over a period of at least 10 years.

To what extent can you justify the conclusion that, ‘It is, therefore, most unlikely that a single scientist will ever again make a major scientific discovery’?

(17)

- 10.** ‘Humanity is continually faced with problems, for example: rising population, shortage of food, traffic congestion and new diseases.’

How necessary is a scientific approach in solving such problems? In your answer show clearly what you understand by scientific method.

(17)

There will be additional marks for quality of written communication.

(3)

(Total 20 marks)

Chosen Question Number: **Question 8** ☒ **Question 9** ☒ **Question 10** ☒



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Section C

(Total 20 marks)

TOTAL FOR SECTION C: 20 MARKS

TOTAL FOR PAPER: 50 MARKS

END

