



Cambridge International AS & A Level

THINKING SKILLS

9694/41

Paper 4 Applied Reasoning

May/June 2021

1 hour 45 minutes



You must answer on the enclosed answer booklet.

You will need: Answer booklet (enclosed)

INSTRUCTIONS

- Answer **all** questions.
- Follow the instructions on the front cover of the answer booklet. If you need additional answer paper, ask the invigilator for a continuation booklet.

INFORMATION

- The total mark for this paper is 50.
- The number of marks for each question or part question is shown in brackets [].

This document has **8** pages. Any blank pages are indicated.

- 1 (a) State the main conclusion of the argument in Document 1. [1]
- (b) Identify **three** intermediate conclusions in paragraphs 2 to 4 of Document 1. [3]
- (c) Analyse the structure of the reasoning in paragraph 6 of Document 1. [4]
- 2 (a) Identify and explain three flaws and/or weaknesses in the reasoning in paragraphs 3 to 6 of Document 1. [6]
- (b) Assess the extent to which the reasoning in paragraph 7 supports the argument as a whole. [3]
- 3 (a) Identify **four** weaknesses in the statistical information given in paragraphs 1 and 2 of Document 1. [4]
- (b) Graph A in Document 4 contains some statistical information.

Make **two** criticisms of the graph itself or the support given by the graph to a claim that 'There has been a big reduction in the number of tests on primates since 2010'. [2]

- 4 *You are advised to spend some time planning your answer before you begin to write it.*

'Animals should not be used for experimentation.'

Construct a reasoned argument to support **or** challenge this claim. In your answer you should make critical use of the documents provided. [27]

DOCUMENT 1

- 1 Testing of cosmetic products on animals is legal in 80% of countries worldwide. According to a major animal rights charity, up to 500 000 animals are used worldwide for cosmetics testing each year. That's nearly 1400 animals a day! Many countries, including in 2013 all those in the EU, have banned testing of cosmetics on animals, but we should strive to make the ban global.
- 2 Animal testing is undeniably cruel. The Draize eye test is used to assess irritation caused by, for example, shampoos. This involves rabbits being incapacitated in stocks with their eyelids held open by clips, so they cannot blink away the products being tested, sometimes for days. The US Government reported that, in 2016, 71 370 animals, including 1272 primates and 5771 rabbits, suffered pain during experiments.
- 3 Like humans, animals can suffer, and I think we can all agree that suffering is undesirable. Nobody would think it OK to force a human child or someone with a mental disability to be restrained and have a potentially harmful substance dropped into their eyes, so it is hypocritical 'speciesism' to experiment on animals but not humans.
- 4 There are ways of testing cosmetics that are increasingly faster, cheaper and more relevant to human reactions than the animal-based testing they could replace. Studying cell cultures in a petri dish can produce more relevant results than animal testing, because human cells can be used. Computer models can predict the toxicity of substances without invasive experiments on animals. The existence of these alternatives means that testing on animals is no longer necessary.
- 5 The rationale that cosmetics companies give for the use of animals is that they will predict effects in humans, but this does not make sense. Animals are very different from humans and are adapted to different environmental conditions, for example being able to see in the dark. Humans are not hairy, but skin tests are done on animals with naturally hairy skin!
- 6 We have been using cosmetics for millennia. Many of these were never tested on anything, so the need for testing cosmetics at all is questionable. We have, in the last few hundred years, developed enough different cosmetics to satisfy the needs of the most glamour-conscious celebrity. We have no real need for any new cosmetics, so testing new ones does not justify the slightest suffering to any living thing.
- 7 We hear a lot about the importance of maintaining the natural environment and of sustainable development in the context of an increasing human population. As part of this sustainability we need to reduce our consumption of meat and move towards a vegetarian lifestyle. Similarly, a ban on testing cosmetics on animals would benefit the environment in the long term.

DOCUMENT 2

Information from the website of a leading university

We have probably all benefited from vaccines and antibiotics to prevent and treat infections, and many of us have been grateful for the anaesthetics used in surgery. Medicines can now overcome serious conditions such as diabetes, asthma, and high blood pressure. In the last few decades we have also begun to tackle some of the more challenging problems such as heart disease, depression, HIV and many cancers. Using animals in scientific research has brought us enormous benefits and, if we want to answer key questions, the use of animals is still essential.

Some reasons why we need animal research

- Nearly every medical breakthrough over the last decade has involved using animal research.
- Animals and humans are very similar; we have the same organ systems performing the same tasks in more or less the same way.
- Animals suffer from similar diseases to humans, including cancers, TB, flu and asthma.
- Mice and humans share 95% of their genes, making mice an effective model for the human body.
- Non-animal methods play an important part in biomedical research but they cannot replace all use of animals.
- Many veterinary medicines are the same as those used for human patients.
- Modern anaesthetics, the tetanus vaccine, penicillin and insulin all relied on animal research in their development.
- Modern surgical techniques, including hip replacement surgery, kidney transplants, heart transplants and blood transfusions, were all perfected in animals.
- Scanning techniques such as MRI were developed using animals.
- Smallpox has been eradicated from the Earth thanks to research using animals.

UK animal research statistics

- Household cats kill approximately 5 million animals in the UK every week – more than the total number of animals used in medical research every year.
- The UK will consume more chickens this year than the total number of all animals used in medical research over the past two centuries.
- 3936723 procedures on animals were undertaken in 2016.
- 72.8% of procedures involved mice; fish 13.6%; rats 6.3%; birds 3.9%; others 3.4%.

DOCUMENT 3

Actor and comedian Robin Griffiths summed up in less than sixty seconds why animal testing is cruel and unreliable.

In a radio interview last month, the vegetarian entertainer said, 'It hardly ever works. Nine out of ten experiments that work on animals then fail on humans and are dangerous. The animal models don't work. Even computer models work better than testing on animals.'

'It continues to happen because people get paid. The people who breed the dogs can make \$3000 or \$4000 per animal. Universities get money from big pharmaceutical companies to carry out research.'

'We've got to end animal testing,' Griffiths continued. 'I know some people are all, "OK but what about AIDS and cancer?" and I can understand that view. But there's no ambiguity about shampoo and beauty products – that's just crazy. Putting chemicals in rabbits' eyes; torturing them to death – it serves no purpose. If you don't want shampoo to sting – don't get it in your eyes,' the comedian joked. He then went on to say that he thinks testing medicines on animals is also cruel and it doesn't work.

According to PETA (People for the Ethical Treatment of Animals, the largest animal rights organisation in the world), more than 93% of animal experiments funded, directly or indirectly, by the US Government fail to lead to human treatments – which means testing on animals is almost all useless. PETA added that over 95% of medicinal drugs that appear to be safe and effective in animals then fail once they reach the stage of human trials.

Most people do not support animal experimentation. A recent survey showed that 72% of consumers believe animal testing is 'inhumane or unethical'.

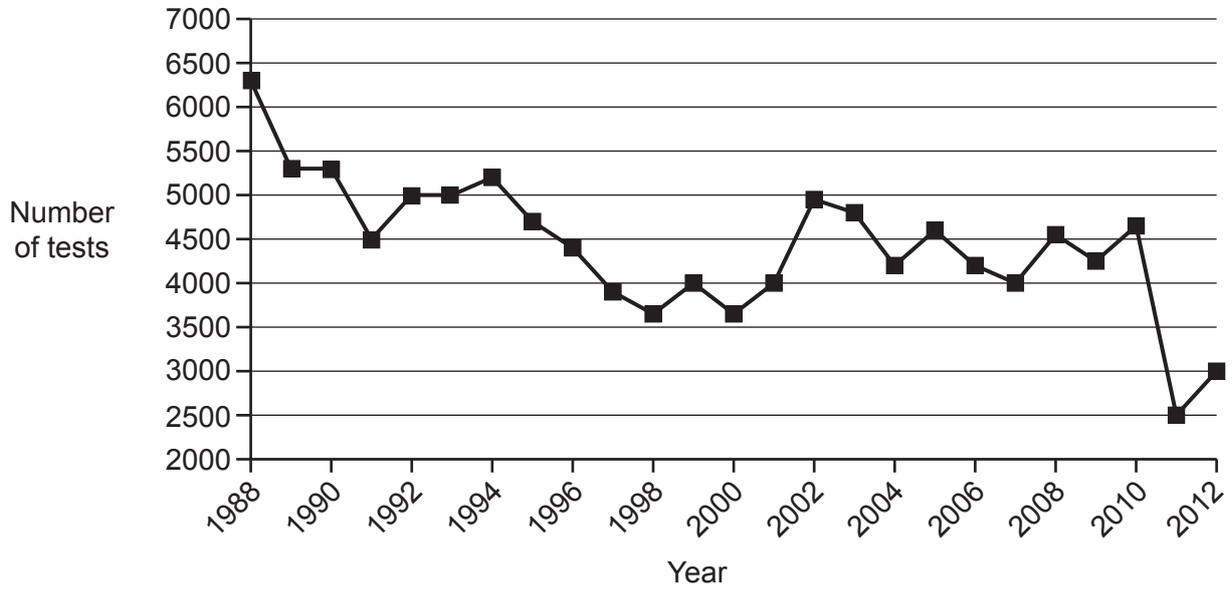
Last year, a campaign for animal-free breast cancer research was launched. The organisation behind the campaign supports doctors who create human breast tissue, outside the body, that can be used to better understand the disease. 'Human disease can only be examined properly using human tissue,' a spokesperson for the organisation said.

Griffiths has long been a supporter of animal welfare and has campaigned against the fur trade and trophy hunting.

DOCUMENT 4

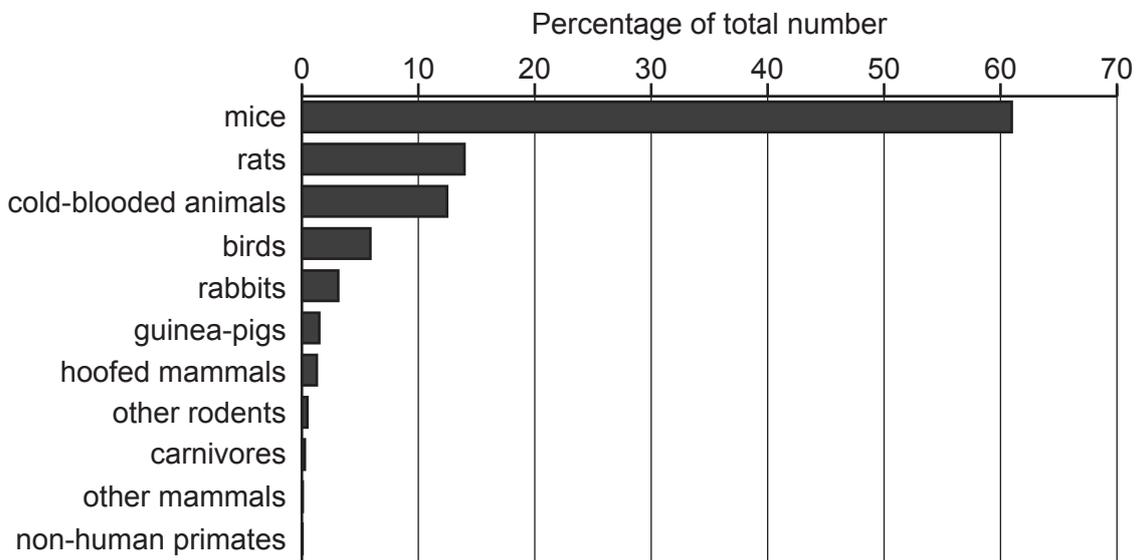
Graph A

Tests on non-human primates in the UK



Graph B

Proportions of animal types used in tests in the EU in 2011



DOCUMENT 5

Animal rights report is criticised by campaigners

Animal rights campaigners have criticised a new Government report aimed at trying to cut the number of laboratory tests on mice, cats, dogs and other species. The critics say the report contains no specific details of how a reduction of animals used in testing will be achieved.

The Government's plan relies on implementing the '3 Rs': Replacing animals with non-animal alternatives, Reducing the number of animals used, and Refining tests to minimise suffering. However, a leading animal rights group said the measures did not go far enough. The group's chief executive, Madeline Thornton, described the report as a whitewash. She said, 'This broken promise is a missed opportunity for the Government to make a difference for the millions of animals that are suffering in laboratories.' She also pointed out that testing on primates had increased by 22 per cent since 2011. She went on to say that 4 million animals were tested on last year, an increase of 8 per cent from the previous year – despite the Government's championing of the so-called 3 Rs policy over the last 3 years.

A university professor who undertakes research using animals told us, 'Animals are only used when there are no suitable alternatives. But the results we get from research can transform lives and pave the way for new and ground-breaking medical advances. Tissue engineering and research using human stem cells are beginning to be used as alternatives to animal testing in some cases but there comes a point when the only way of testing the effects in a whole living organism is to do just that.'

A Government spokesman said, 'The scientific case for developing new techniques that do not involve animals is as strong as the moral one'.

TV debate provokes Twitter storm

Last month, this newspaper revealed not only that around 24 000 dogs and more than 1000 cats have been used for experiments over the last 5 years but that donations made to medical research charities were being used to carry out tests on animals. Tests carried out on cats included implanting electrodes in the skull and the stitching of eyes.

The issue of animal testing prompted a Twitter storm today after it was debated live on daytime television.

Speaking in defence of animal experimentation, Wendy Holmes said, 'Every medicine, every vaccine, every treatment for animals and humans has been developed using animal research. Most of the research involves an animal being given a dose of a medicine. If we stopped animal research tomorrow, we would never have any new medicines. By law, every new medicine has to be tested on animals before it can go into human trials.'

Speaking against animal experimentation, Rowena Fox said, 'The public continues to be shielded from the realities of animal experimentation, and any information that is put out is sadly highly sanitised. These procedures on animals would be illegal in any other circumstances.'

A poll showed that 80 per cent of the programme's viewers were against animal testing, with only 20 per cent in favour.

Alice Lyon tweeted, 'This is a tricky one. My heart says absolutely no, but then what is the alternative for necessary drug testing?'

Owain Gregory tweeted, 'Animal testing for cosmetics, no; animal testing for medicine, yes. Anyone who disagrees needs to grow up.'

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