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**THINKING SKILLS**

Paper 4 Applied Reasoning

**9694/43**

**May/June 2016**

**1 hour 30 minutes**

No Additional Materials are required.

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**READ THESE INSTRUCTIONS FIRST**

An answer booklet is provided inside this question paper. You should follow the instructions on the front cover of the answer booklet. If you need additional answer paper ask the invigilator for a continuation booklet.

Answer **all** the questions.

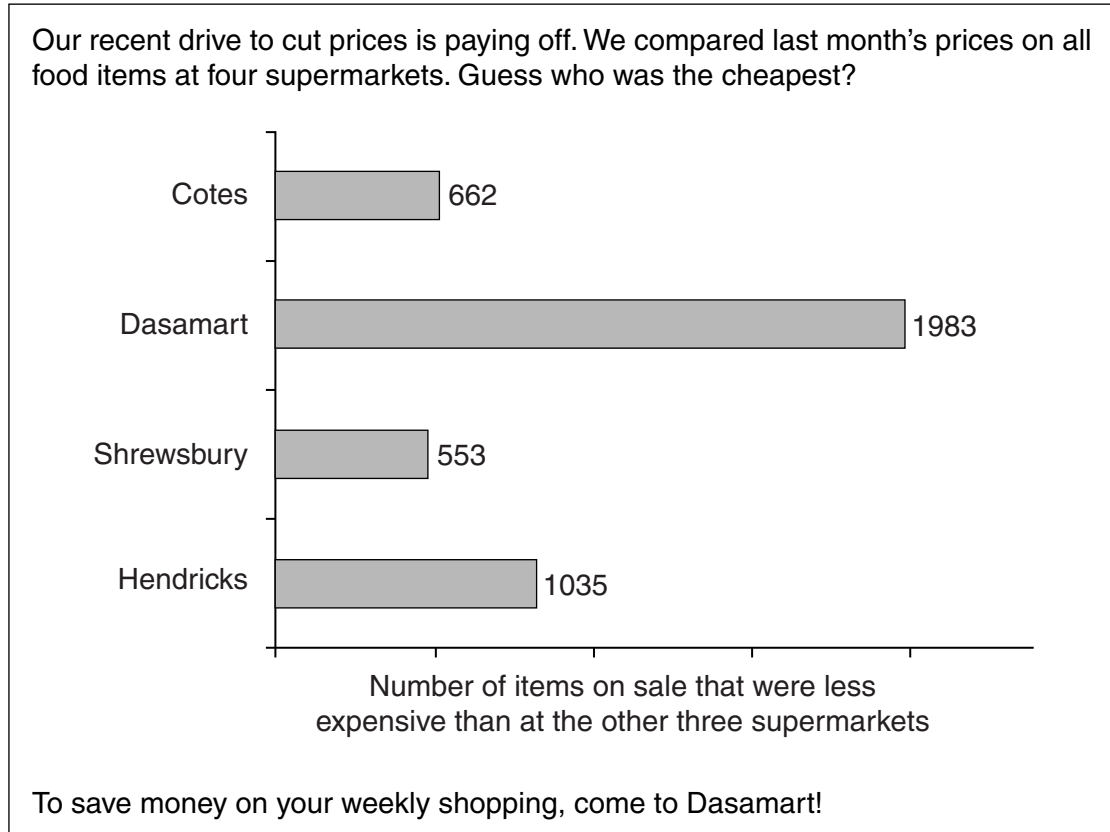
The number of marks is given in brackets [ ] at the end of each question.



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This document consists of **7** printed pages, **1** blank page and **1** insert.

- 1 Study the information below and answer the question that follows.



Make **five** criticisms of the statistics in the advertisement and/or the support they give to the claim, "To save money on your weekly shopping, come to Dasamart!" [5]

Questions 2, 3 and 4 refer to Documents 1 to 5.

- 2 Briefly analyse E Rainbow's argument in Document 1: *Meat-free future*, by identifying its main conclusion, intermediate conclusions and any counter-assertions. [6]
- 3 Give a critical evaluation of the strength of E Rainbow's argument in Document 1: *Meat-free future*, by identifying and explaining any flaws, implicit assumptions and other weaknesses. [9]
- 4 'Everyone should adopt a meat-free diet.'

Construct a reasoned argument to support **or** challenge this claim, commenting critically on some or all of Documents 1 to 5 and introducing ideas of your own. [30]

**DOCUMENT 1****Meat-free future**

It was reported recently that the Ancient Egyptians were vegetarians. Analysis of tissue from a mummy has shown that they might have had an almost entirely vegetarian diet. It is often said that protein from meat is needed to build muscle and that fish is 'brain food'. However, if the evidence is true, the Egyptians seem to have achieved great things without resorting to eating animals.

The most obvious reason for giving up meat is that killing animals is morally wrong. How often have you looked at a baby lamb and thought, "How cute!", only to order a kebab later that same evening – and throw away the salad! It is strange that people seem comfortable watching a family film about a talking pig and then eating bacon for breakfast. Critics often reply smugly that vegetables need to be killed in order to eat them, but animals are not vegetables, they are different. Even the most committed meat-eaters would agree that we should not eat intelligent life forms. The brain is the seat of intelligence so, by their own logic, we should not eat anything that has a brain. If the Ancient Egyptians could do it, so can we. We should cut meat from our diets completely.

Many animals reared for food suffer intolerable cruelty during their lives – the process of stunning before killing does not always work and some religions insist on slaughtering techniques that seem cruel in the extreme. It is strange that none of the meat apologists ever volunteers to be kept in a pen all their life, be stunned by a large electrical current and then killed as soon as they reach adulthood!

A vegetarian diet improves your health. Heart disease is the biggest killer in the Western world. Most heart disease is caused by eating too much saturated fat, almost all of which comes from eating animals. Beef, pork, lamb, milk, cheese and eggs all contain large amounts of this killer fat. Despite claims to the contrary, plants can provide most of the vitamins and minerals needed for a healthy diet. Indeed, consuming the anthocyanins contained in many berries is associated with an ever-growing list of health benefits: reducing cancer and high blood pressure are just two examples. Most scientific studies show that vegetarians live longer than regular meat-eaters.

Already there are over 7 billion people in the world, many of whom are starving. The population of the world has been increasing exponentially for over 100 years and will continue to do so. If we continue as we are, we face widespread famine. Meat production is very inefficient: many more people can be fed from an acre of vegetables than from an acre of land used for livestock. Widespread conversion to a meat-free diet is our only hope to avoid mass starvation.

The number of vegetarians is on the increase. In the UK alone, 12% of teenagers described themselves as vegetarian in 2012. The figure was 6% in 2000 and less than 0.5% in 1960. Since the mid-1800s there has been a rapid year-on-year increase in the number of books written about vegetarian cooking or vegetarianism in general. An increasing number of celebrities are adopting a vegetarian lifestyle. Even Lisa Simpson (the most intelligent of the Simpson family) gave up meat after meeting Paul and Linda McCartney. The future is vegetarian.

**E Rainbow**

## DOCUMENT 2

### **Becoming vegetarian ‘can harm the environment’**

Adopting a vegetarian diet based around meat substitutes such as tofu can cause more damage to the environment, according to a new study.

It has often been claimed that avoiding red meat is beneficial to the environment, because it lowers emissions and less land is used to produce alternatives. But a study by Cranfield University, commissioned by WWF, the environmental group, found a substantial number of meat substitutes – such as soy, chickpeas and lentils – were more harmful to the environment, because they were imported into Britain from overseas.

The study concluded: “A switch from beef and milk to highly refined livestock product analogues such as tofu could actually increase the quantity of arable land needed to supply the UK.”

The results showed that the amount of foreign land required to produce the substitute products, and the potential destruction of forests to make way for farmland, outweighed the negatives of rearing beef and lamb in the UK. An increase in vegetarianism could result in the collapse of British farming, the study warned, causing meat production to move overseas where there may be less legal protection of forests and uncultivated land. Meat substitutes were also found to be highly processed, often requiring large amounts of energy to produce. The study recognised that the environmental merits of vegetarianism depended largely on which types of food were consumed as an alternative to meat.

Donal Murphy-Bokern, one of the authors of the study and former farming and science coordinator at the Department for Environment, Food and Rural Affairs, told a newspaper, “For some people, tofu and other meat substitutes symbolise environmental friendliness, but they are not necessarily the badge of merit people claim. Simply eating more bread, pasta and potatoes instead of meat is more environmentally friendly.”

Lord Stern of Bradford, the climate change economist, claimed last October that a vegetarian diet was beneficial to the planet. He told a newspaper, “Meat is a wasteful use of water and creates a lot of greenhouse gases. It puts enormous pressure on the world’s resources. A vegetarian diet is better.”

Liz O’Neill, spokeswoman for the Vegetarian Society, told a newspaper, “The figures used in the report are based on a number of questionable assumptions about how vegetarians balance their diet and how the food industry might respond to increased demand. If you are aiming to reduce your environmental impact by going vegetarian then it is obviously not a good idea to rely on highly processed products, but that does not undermine the fact that the livestock industry causes enormous damage.”

The National Farmers’ Union said the study showed that general arguments about vegetarianism being beneficial to the environment were simplistic.

## DOCUMENT 3

### The health benefits of eating Quorn products

You may know Quorn as a range of foods popular with vegetarians. What you may not know is that more and more non-vegetarians are incorporating Quorn products into their diets to help them follow a lighter, healthier lifestyle.

### What is Quorn?

Quorn is the brand name for a versatile range of healthy foods. At the heart of all Quorn products is a unique ingredient called mycoprotein. Mycoprotein is made from a nutritious member of the fungi family which was discovered growing in a garden in Marlow, Buckinghamshire forty years ago. Today there are more than 100 products in the Quorn range, from burgers and sausages to ready meals and pies. Here we focus on the cooking ingredients in the range, Quorn Mince and Quorn Pieces, both of which are very high in mycoprotein.

### What are the benefits of replacing meat with Quorn Mince and Quorn Pieces?

Like meat, Quorn Mince and Quorn Pieces are excellent sources of protein but they're generally lower in saturated fat and calories than their meat equivalents. For example, Quorn Mince contains only 54% of the calories of beef mince, about 22% of the fat, and just 14% of the saturates. Quorn Mince and Quorn Pieces also contain no cholesterol and no trans-fats at all. They're also good sources of dietary fibre. In fact you get more fibre from 100g of Quorn Mince than from 100g of baked beans. By the way, there is no dietary fibre at all in meat and poultry.

### Health benefits of Quorn products

There have been a number of academic studies examining the health properties of mycoprotein, the special ingredient in all Quorn products.

- **Cholesterol:** Most Quorn products contain no cholesterol, but in addition to that, research suggests that mycoprotein may have a valuable role to play in helping to maintain healthy cholesterol levels or even to lower LDL (bad) cholesterol, so helping to maintain a healthy heart.
- **Weight control:** There is also evidence to suggest that mycoprotein can help improve what dieticians call 'satiety', the sense of feeling satisfied and full. Hence mycoprotein may help regulate energy intake among those looking to control or lose weight.

### Do Quorn products have all the same nutrients as meat and poultry?

Quorn products have less of the things that most people need to cut down on, such as fat, saturates and calories. But broadly speaking, you can get all the good things from Quorn products that you get from meat. In fact, the quality of protein in Quorn Mince and Quorn Pieces is identical to chicken and a little better than beef. Being vegetable in origin, there is less iron in Quorn products than in red meat but this can be made up with foods such as leafy green vegetables, lentils, kidney beans and some dried fruits.

### How do I cook with Quorn products?

In general, Quorn foods can be prepared using a conventional oven or microwave. They can be prepared in a similar fashion to their meat and poultry counterparts. They're delicious and tasty grilled, baked, and sautéed and can be prepared quickly and easily, and there's no preparation necessary and no waste. Cooking instructions appear on each pack and will of course vary depending on the product type.

### Extract from Quorn manufacturer's website

**DOCUMENT 4****Comments on a social media site responding to criticisms of people who eat meat**

Many people wrongly assume that the increase in vegetarianism in recent years has been due to the advertised health benefits of a vegetarian diet – berries good, beef bad. However, the increase in vegetarianism happened around the same time that large numbers of children began watching cartoons of talking animals. This, and the ubiquity of furry, cuddly animal toys, is the real cause of the ‘vegetarian explosion’. Early-life exposure to fictional animals with human characteristics has led to a belief among the general population that animals are small furry people so we should not eat them! Maybe now we are seeing children’s animated films about talking cars and vegetables this worrying trend might be reversed.

Whassupdoc

“Turkeys wouldn’t vote for Christmas”, right? Wrong! There are millions of turkeys on farms all over the world. If people did not eat turkeys there would be, at best, a small population roaming free in North America, and, at worst, they could be extinct. If I was ‘Chief Turkey’ I would be pleased that there is a tradition of Christmas turkey in Britain and Thanksgiving turkey in the US. Turkeys, like other domesticated birds that we eat, flourish because humans look after them. Christmas will ensure that turkey genes are passed on to generations of turkeys for years to come. Being a domesticated animal has been a very successful evolutionary strategy for many species. Those animals that tasted good, and were tame enough for humans to easily keep, benefited from assured continuation of their genetic heritage. The wild cousins of these domestic animals have struggled to survive, with many succumbing to extinction. Wild horses are rare, domestic ones are common.

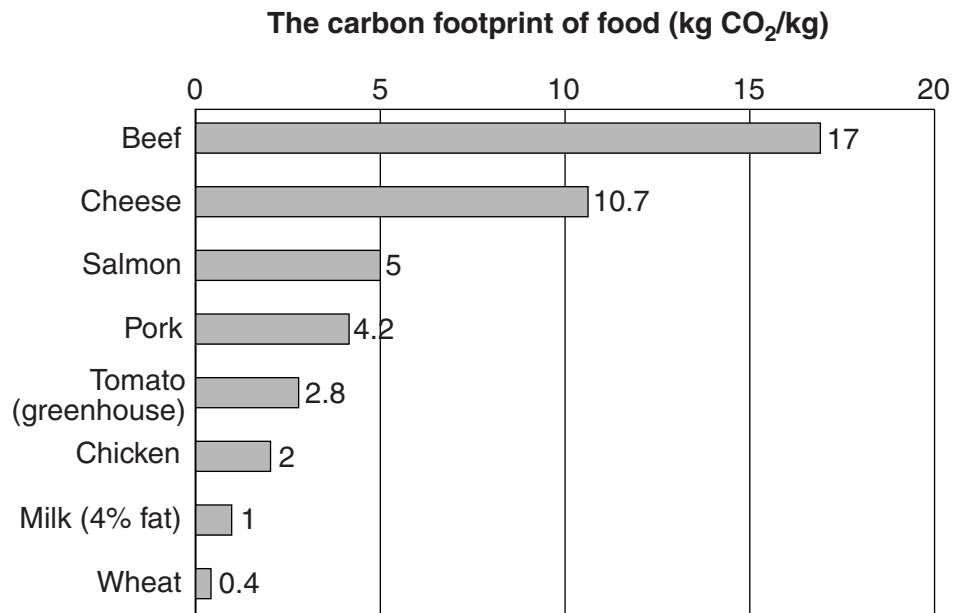
Otis

Humans are meant to eat meat. The Bible says so and so does evolution. In the book of Genesis, chapter 9, verse 3, we find the words “Every moving thing that liveth shall be meat for you; even as the green herb have I given you all things” – meaning that humans have the moral right to eat animals. Furthermore, human teeth are not specialized to eat meat and are not specialized to eat plants. We have the generalized teeth of an omnivore, something which can cope with food of plant, animal and indeed fungal origin. With God and science on your side – you have to be right.

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## DOCUMENT 5

Chart appearing on a news report about a Swedish fast food restaurant that had begun publishing the carbon footprint of the food it serves on the menus



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