

Write your name here

Surname

Other names

Centre Number

Candidate Number

Edexcel GCE

General Studies

Advanced Subsidiary

Unit 1: Challenges for Society

Tuesday 11 January 2011 – Afternoon

Time: 1 hour 30 minutes

Paper Reference

6GS01/01

You must have:

Insert (enclosed)

Calculator

Total Marks

Instructions

- Use **black** ink or ball-point pen.
- **Fill in the boxes** at the top of this page with your name, centre number and candidate number.
- Answer **all** questions.
- Answer the questions in the spaces provided
– *there may be more space than you need.*
- Do not return the insert with the question paper.

Information

- The total mark for this paper is 90.
- The marks for **each** question are shown in brackets
– *use this as a guide as to how much time to spend on each question.*
- Quality of written communication will be taken into account in the marking of your answers
– *you should take particular care with your spelling, punctuation, grammar and clarity of expression.*

Advice

- Read each question carefully before you start to answer it.
- Keep an eye on the time.
- Try to answer every question.
- Check your answers if you have time at the end.

Turn over ►

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SECTION A

Answer ALL questions.

You should aim to spend no more than 20 minutes on this section.

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 ☒.

Use the information below to help you answer questions 1 to 5.

Why the teenage brain needs a lie-in

A leading expert has claimed that teenagers really do need a morning lie-in. The teenage brain is still developing and needs extra sleep according to Professor Russell Foster, a biologist at Oxford University. Research has shown that sleep timing changes markedly as we age, and bed and wake times become later and later until the age of 20. In other words, teenagers are biologically programmed to want to stay under the duvet.

Research in America has shown that 25% of teenagers get fewer than six and a half hours sleep a night. However, some experts estimate that teenagers need about nine hours sleep. A later starting time for school could improve the mental abilities of teenagers in morning lessons. "Minor changes in the way we time educational activities could have major benefits," said Professor Foster.

Source: adapted from Roger Highfield, Science Editor, *The Daily Telegraph*, 13 January 2007

- 1 The sentence "Research in America has shown that 25% of teenagers get fewer than six and a half hours sleep a night" contains

- A only fact
- B only opinion
- C both fact and opinion
- D no fact or opinion

(Total for Question 1 = 1 mark)

- 2 The sentence "A later starting time for school could improve the mental abilities of teenagers in morning lessons" contains

- A only fact
- B only opinion
- C both fact and opinion
- D no fact or opinion

(Total for Question 2 = 1 mark)



3 The idea that “Minor changes in the way we time educational activities could have major benefits” is best described as a hypothesis rather than a theory because

- A it is not confirmed by any research mentioned in the passage
- B a theory cannot be used to make a prediction
- C research carried out in America does not apply to all teenagers
- D the possible benefits of starting school at a later time cannot be easily measured

(Total for Question 3 = 1 mark)

4 The argument, as it appears in the passage, that “The teenage brain is still developing and needs extra sleep...” is best described as

- A an argument by analogy
- B an argument by deduction
- C an argument from cause
- D an argument from authority

(Total for Question 4 = 1 mark)

5 Which one of these conclusions is best supported by the evidence in the passage?

- A all teenagers need a minimum of nine hours sleep
- B sleeping patterns change with age
- C students are inattentive during morning lessons
- D older people need less sleep than younger people

(Total for Question 5 = 1 mark)

6 Scientific predictions are based on

- A deduction
- B reduction
- C induction
- D reflection

(Total for Question 6 = 1 mark)



7 Occam's Razor is also known as

- A the principle of simplicity
- B the principle of causality
- C the principle of reliability
- D the principle of utility

(Total for Question 7 = 1 mark)

8 Which one of these scientific developments did **not** challenge religious beliefs?

- A Darwin's theory of evolution by means of natural selection
- B the Copernican heliocentric model of the solar system
- C geological evidence that the Earth is billions of years old
- D Newton's universal law of gravitational attraction

(Total for Question 8 = 1 mark)

9 Science cannot answer questions about whether stem cell research is morally right or wrong because

- A we do not know if any scientific research will be successful
- B the ethics of stem cell research are too complicated
- C there is no ethical code on which all scientists agree
- D scientific research is only concerned with the way things work

(Total for Question 9 = 1 mark)

10 A consequence of global warming is that

- A temperatures everywhere will increase
- B the amount of ozone in the atmosphere will decrease
- C the average world temperature will increase
- D average sea levels will decrease

(Total for Question 10 = 1 mark)



11 Which of these statements is true of a secular society?

- A government is controlled by religious leaders
- B state and church are separate
- C religious worship is compulsory
- D there is less violent crime

(Total for Question 11 = 1 mark)

12 Which one of the following would **not** be considered a human right in the UK?

- A freedom of belief
- B fair treatment by the law
- C owning your home
- D protection from discrimination

(Total for Question 12 = 1 mark)

13 Which one of these offences is **most** likely to be punished by imprisonment?

- A manslaughter
- B drink-driving
- C shoplifting
- D stealing a car

(Total for Question 13 = 1 mark)

14 Prisoners are on parole when they

- A have served their full prison sentence
- B have been released before the end of their sentence
- C have to do community service instead of their jail sentence
- D have appealed against their sentence

(Total for Question 14 = 1 mark)



Use the information below to help you answer questions 15 to 20.

Does prison work?

Between 1993 and 2006 the prison population in England and Wales increased from 41,600 to 80,000. In 2006 we jailed 147 people per 100,000 of population, the highest figure in western Europe. Over this period, the number of recorded crimes fell, peaking at 19 million in 1995 before falling steadily to just under 11 million in 2006. So locking up criminals works, because it acts as a deterrent and reduces crime. If this was the case we might also expect the reoffending rate for criminals who have been previously jailed to fall with falling crime rates. Unfortunately, the number of persistent offenders and the rate at which they reoffend has remained static despite falling crime rates.

15 To the nearest 1%, what was the increase in the prison population in England and Wales between 1993 and 2006?

- A 42%
- B 48%
- C 52%
- D 92%

(Total for Question 15 = 1 mark)

16 To the nearest 1000, what was the population of England and Wales in 2006?

- A 52 299 000
- B 54 422 000
- C 62 152 000
- D 64 600 000

(Total for Question 16 = 1 mark)

17 The sentence "Between 1993 and 2006 the prison population in England and Wales increased from 41,600 to 80,000" contains

- A only fact
- B only opinion
- C both fact and opinion
- D no fact or opinion

(Total for Question 17 = 1 mark)



18 The sentence “Unfortunately, the number of persistent offenders and the rate at which they reoffend has remained static despite falling crime rates” contains

- A** only fact
- B** only opinion
- C** both fact and opinion
- D** no fact or opinion

(Total for Question 18 = 1 mark)

19 The argument that “locking up criminals works, because it acts as a deterrent and reduces crime” is best described as

- A** an argument from cause
- B** an argument from authority
- C** an argument by analogy
- D** an argument by deduction

(Total for Question 19 = 1 mark)

20 Which one of these conclusions about crime in England and Wales between 1993 and 2006 is best supported by the evidence in the passage?

- A** the number of crimes committed by persistent offenders increased
- B** the proportion of crimes committed by persistent offenders increased
- C** England and Wales had the highest crime rate in western Europe
- D** England and Wales had the highest number of prisoners in western Europe

(Total for Question 20 = 1 mark)

TOTAL FOR SECTION A = 20 MARKS



SECTION B

Answer ALL questions.

You should aim to spend no more than 30 minutes on this section.

Read Source 1 on the separate insert and then answer questions 21 to 28.

21 From the information given in paragraph 1, estimate the number of children who die of starvation every year.

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(Total for Question 21 = 2 marks)

22 Use your own knowledge to explain, in the context of agriculture, what is referred to by the statement “science is now able to do quickly what was achieved very slowly in the past using traditional methods”.

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(Total for Question 22 = 3 marks)



23 The writer uses an argument from analogy.

(a) Explain what is meant by an argument from analogy.

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(b) Identify an argument from analogy used in the passage.

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(Total for Question 23 = 2 marks)

24 From the passage, identify three pieces of evidence which demonstrate public concern about the use of GM food crops.

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(Total for Question 24 = 3 marks)



25 From the passage, identify two pieces of evidence which suggest that GM foods are not harmful to human health.

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(Total for Question 25 = 2 marks)

26 Use your own knowledge to explain how scientific knowledge about DNA has led to the development of GM technology.

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(Total for Question 26 = 3 marks)



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Dotted lines for writing.

(Total for Question 29 = 20 marks)

includes 4 marks for Quality of Written Communication



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Source material

Source 1

Genetically Modified food – a modern Frankenstein?

With the world population rising to 8 billion by 2020, widespread famine threatens unless we act now. The World Health Organisation estimates that a third of the world is starving and that a child dies of starvation every 5 seconds. Many scientists argue that we already have the solution to this problem but are held back by misguided concerns.

- 5 Genetically modified (GM) foods have existed for a number of years. One of the arguments in favour of GM foods is that science is now able to do quickly what was achieved very slowly in the past using traditional methods. In this sense, GM technology is like many other technological advances in transport or industrial production that have also brought us enormous benefits.
- 10 GM crops can give higher yields at lower costs by modifying plants to make them resistant to herbicides, making weeds easier to control. They can also be made more resistant to pests, reducing the need for spraying crops. Nevertheless, environmentalists argue that this will reduce the variety of plant species and the insect population. Other organisms, such as birds, may no longer have a viable habitat.
- 15 While GM crops can produce more attractive food, the greatest gains may come from plants altered to grow well where the soil is poor or water is scarce. These are just the conditions in parts of sub-Saharan Africa where the need for more food may be greatest.

Although the USA has been producing and eating a variety of GM foods for many years, UK consumers have been spooked by tales of "Frankenstein food", so that supermarkets

20 have effectively banned GM products, or at least those that can be identified as GM. Many people don't realise that much of the processed food we eat contains small quantities of GM ingredients such as maize. Nevertheless, attitude surveys in the UK show continuing opposition to GM foods.

During the Industrial Revolution Mary Shelley's *Frankenstein* embodied fears about a

25 technological future. But today the benefits of GM foods are obvious and there is no evidence that, if managed carefully, the widespread introduction of GM crops will be anything other than beneficial, particularly for those most in need of more food. It is time we embarked on this new "Agricultural Revolution".