

Write your name here

Surname

Other names

Centre Number

Candidate Number

Edexcel GCE

General Studies

Advanced Subsidiary

Unit 1: Challenges for Society

Thursday 19 May 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 ►

P38440A

©2011 Edexcel Limited.

4/5/4/6/3/3/



edexcel 
advancing learning, changing lives

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.

Animal Testing in the UK

In the UK, tests using live vertebrates must be licensed under the Animals Act of 1986. The Act aims to minimise the amount of pain inflicted during tests. The Act does not apply to the use of invertebrates such as fruit flies.

In 2002, mice accounted for 84% of a total of 2.65 million animals used. Mice are used so often because 99% of human genes have an equivalent in mice. A surprisingly large proportion of the total number of animals, some 710 000, were genetically modified.

1 The sentence "In the UK, tests using live vertebrates must be licensed under the Animals Act of 1986" 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 surprisingly large proportion of the total number of animals, some 710 000, were genetically modified" contains

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

(Total for Question 2 = 1 mark)



3 To the nearest 1000, how many vertebrates other than mice were used in animal testing in 2002?

- A 365 000
- B 424 000
- C 596 000
- D 710 000

(Total for Question 3 = 1 mark)

4 To the nearest 1%, what percentage of the vertebrates used for testing in 2002 were genetically modified?

- A 26%
- B 27%
- C 28%
- D 29%

(Total for Question 4 = 1 mark)

5 Based on the passage, what is the most likely reason that the Act does not apply to fruit flies?

- A the Act only applies to animals which are genetically modified
- B there are no similarities between the DNA of humans and the DNA of fruit flies
- C insects do not feel pain in the same way as animals such as mammals
- D only a small number of fruit flies are used in tests

(Total for Question 5 = 1 mark)

6 Which one of the following would be a suitable topic for scientific investigation?

- A is there life after death?
- B should we spend more money on cancer research?
- C are nuclear weapons immoral?
- D is there life on other planets?

(Total for Question 6 = 1 mark)



7 In the Copernican model of the solar system

- A other planets and the Sun orbit the Earth
- B other planets orbit the Sun and the Sun orbits the Earth
- C the Earth and other planets orbit the Sun
- D the Earth orbits the Sun and other planets orbit the Earth

(Total for Question 7 = 1 mark)

8 "Intelligent Design" is an argument used to support

- A Darwinism
- B Reductionism
- C Universalism
- D Creationism

(Total for Question 8 = 1 mark)

Read the following list and then answer Questions 9 and 10.

- (i) structure of DNA
- (ii) nuclear weapons
- (iii) theory of relativity
- (iv) the internet
- (v) electric cars
- (vi) the law of gravitation

9 Which one of the following combinations refers only to scientific discoveries?

- A (i) (ii) and (vi)
- B (i) and (iii)
- C (iii) (iv) and (v)
- D (ii) (iv) and (v)

(Total for Question 9 = 1 mark)

10 Which one of the following combinations refers only to technological developments?

- A (i) and (ii)
- B (i) and (iii)
- C (ii) (iv) and (vi)
- D (ii) (iv) and (v)

(Total for Question 10 = 1 mark)



11 A state in which there is a formal separation between religious beliefs and practices and the operation of the state is best described as

- A** titular
- B** popular
- C** secular
- D** insular

(Total for Question 11 = 1 mark)

12 Which one of the following best describes civil liberties in the UK?

- A** civil liberties can be suspended in emergencies
- B** civil liberties cannot be suspended in emergencies
- C** civil liberties are not determined by law
- D** civil liberties apply only to adults

(Total for Question 12 = 1 mark)

13 "Common law" is

- A** the set of laws passed by Parliament
- B** concerned only with the punishment of offenders
- C** the set of laws applied most frequently
- D** based on custom or precedent

(Total for Question 13 = 1 mark)

14 Which one of the following is true of a magistrates' court?

- A** magistrates can only impose fines
- B** there is no jury in a magistrates' court
- C** magistrates deal only with motoring offences
- D** an appeal against a sentence can be dealt with in a magistrates' court

(Total for Question 14 = 1 mark)



15 In the context of punishment, rehabilitation means that prisoners

- A** receive training to help their return to normal life
- B** pay compensation to their victims
- C** demonstrate that their criminal behaviour has stopped
- D** receive help with accommodation when released

(Total for Question 15 = 1 mark)

Use the information below to help you answer questions 16 to 20.

The History of Antiseptics

Ignasz Semmelweiss was working in the maternity clinic of Vienna Hospital in 1847. He noticed that mortality rates were considerably higher for mothers looked after by trainee doctors than for mothers looked after by midwives. He knew that trainee doctors carried out post-mortem examinations without washing their hands afterwards. They then went on to treat women in the maternity clinic. Semmelweiss thought that perhaps the trainee doctors were passing on "infectious particles" from post-mortems to the expectant mothers. When he persuaded the trainee doctors to wash their hands between treatments, mortality rates fell significantly. Semmelweiss' ideas eventually led to germ theory and the control of other infections by the use of antiseptics.

16 The sentence "Ignasz Semmelweiss was working in the maternity clinic of Vienna Hospital in 1847" contains

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

(Total for Question 16 = 1 mark)

17 The phrase "He noticed mortality rates were considerably higher" 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 phrase "Semmelweiss thought that perhaps the trainee doctors were passing on "infectious particles"... is best described as

- A** hypothesis
- B** theory
- C** observation
- D** prediction

(Total for Question 18 = 1 mark)

19 The development of germ theory and the use of antiseptics based on Semmelweiss' work is an example of

- A** abduction
- B** deduction
- C** production
- D** induction

(Total for Question 19 = 1 mark)

20 Of the following conclusions, which one is the most likely inference from the passage?

- A** trainee doctors looked after fewer mothers than midwives
- B** trainee doctors looked after more mothers than midwives
- C** midwives did not carry out post-mortem examinations
- D** midwives did not wash their hands between treatments

(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 paragraph 1, identify three problems associated with the number of vehicles in the UK.

1.....
.....
2.....
.....
3.....
.....

(Total for Question 21 = 2 marks)

22 Paragraph 1 states that internal combustion engines are “only 20% efficient”. Explain what is meant by this statement.

.....
.....
.....
.....
.....
.....
.....

(Total for Question 22 = 2 marks)



23 Using the evidence in paragraphs 1 and 3, calculate the overall efficiency of an electric car, assuming that the energy to charge the batteries comes from a coal-fired power station.

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....

(Total for Question 23 = 3 marks)



24 Explain how “a combined heat and power scheme” (paragraph 3) can increase the overall efficiency of a coal-fired power station.

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....

(Total for Question 24 = 3 marks)



25 Why might a hydrogen fuel cell be described as “carbon neutral”?

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....

(Total for Question 25 = 3 marks)



27 (a) What are the characteristics of an argument from analogy?

(2)

.....

.....

.....

.....

.....

.....

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

(1)

.....

.....

.....

(Total for Question 27 = 3 marks)



Handwriting practice area with 25 horizontal dotted lines.



Lined writing area with horizontal dotted lines.



Edexcel GCE

General Studies

Advanced Subsidiary

Unit 1: Challenges for Society

Thursday 19 May 2011 – Afternoon

Time: 1 hour 30 minutes

Paper Reference

6GS01/01

Insert

**Do not return this insert with
the question paper.**

Turn over ►

P38440A

©2011 Edexcel Limited.

4/5/4/6/3/3/



edexcel 
advancing learning, changing lives

Source material

Source 1

Do cars have a future?

Among the most obvious signs of our dependence on fossil fuels, are our clogged roads and motorways. The 30 million vehicles in the UK are using up our shrinking resources and make a significant contribution to our carbon footprint, as well as emitting other pollutants. With rising public concern about the environment and sustainability, car manufacturers are now investing heavily in research on alternatives to the traditional internal combustion engine (ICE) powered by petrol or diesel fuel, which is only about 20% efficient.

In the short term, there are several alternatives put forward as replacement fuels for ICEs. Biofuels, such as bioethanol, are derived from vegetation and are claimed to be “carbon neutral”. This ignores any other carbon cost associated with the fuel, as well as arguments about deforestation and the use of agricultural land. Another possibility is the use of hydrogen gas. This would only reduce carbon emissions if it could be produced from water by electrolysis, using electricity from renewables or nuclear power stations. There are also concerns about the safety of cars equipped with highly pressurised hydrogen gas containers as well as difficulties with refuelling.

In the longer term, electric vehicles may present a more viable alternative. The mechanical simplicity of electric motors helps to make them 4 times more efficient than ICE powered cars and vans. However, the overall efficiency and any saving in carbon emissions depend on the method of electricity generation. A coal-fired power station is typically 35% efficient, unless waste heat energy can be used in a combined heat and power scheme. Some 80% of our electricity is still produced from the burning of fossil fuels. Electric vehicles also need an energy store. If this is provided by batteries, electric vehicles have a low range and a long recharge time. One development that might eventually overcome some of these problems is the fuel cell, which reacts hydrogen with oxygen to produce electricity. Water is the only waste product in this process.

Any addiction needs a cure or a fix. Some argue that our addiction to the personal mobility and freedom which cars give us can be cured by improved public transport, combined with changes in behaviour and work patterns. But we don't need to suffer the misery of withdrawal because the evidence shows clearly that a fix is possible. Our love affair with the car is not over yet.