

Write your name here

Surname

Other names

Centre Number

Candidate Number

Edexcel GCE

General Studies

Advanced Subsidiary

Unit 1: Challenges for Society

Monday 20 May 2013 – Morning

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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PEARSON

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 about an answer, 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.

Pets in England

% of households with pets		
Region	Dogs	Cats
South West	29	28
North East	29	16
East	25	21
Yorkshire & Humberside	23	15
London	9	13

(Source: adapted from PFMA/TNS/2008/2009,
<http://www.pfma.org.uk/regional-pet-population/>)

1 Assuming all regions have the same total number of households, the mean % of households with dogs is

- A 23%
- B 25%
- C 27%
- D 29%

(Total for Question 1 = 1 mark)

2 Assuming all regions have the same total number of households, the region with the median % of households with cats is

- A North East
- B East
- C Yorkshire & Humberside
- D London

(Total for Question 2 = 1 mark)



3 If 300,000 households in London have dogs, to the nearest thousand how many London households have cats?

- A** 413,000
- B** 423,000
- C** 433,000
- D** 443,000

(Total for Question 3 = 1 mark)

4 Which of these statements about the North East region is correct?

- A** At least 45% of households have cats or dogs or both
- B** At least 29% of households have cats or dogs or both
- C** At least 13% of households with cats also have dogs
- D** At least 16% of households with dogs also have cats

(Total for Question 4 = 1 mark)

5 The figures in the table are based on questioning a random sample of households in each region. Increasing the sample size would be most likely to

- A** increase the overall % figures
- B** decrease the overall % figures
- C** make the figures less reliable
- D** make the figures more reliable

(Total for Question 5 = 1 mark)

6 We cannot be certain that scientific theories are correct because they are based on

- A** simplicity
- B** complexity
- C** deduction
- D** induction

(Total for Question 6 = 1 mark)



7 Which of these describes the development of a scientific theory?

- A theory › observation › hypothesis › testing
- B observation › hypothesis › testing › theory
- C theory › hypothesis › observation › testing
- D observation › testing › hypothesis › theory

(Total for Question 7 = 1 mark)

8 Which of these questions cannot be answered by using existing scientific methods?

- A Is there life on other planets?
- B Do animals experience pain?
- C Do humans have a soul?
- D Is a cure for cancer possible?

(Total for Question 8 = 1 mark)

9 Government funding for scientific research is mainly distributed to

- A County Councils
- B Drug companies
- C Charities
- D Universities

(Total for Question 9 = 1 mark)

10 Which of these is a possible example of 'leapfrog' technology?

- A Jet engine
- B Solar power
- C Railway network
- D Suspension bridge

(Total for Question 10 = 1 mark)



11 Oxfam provides emergency aid following disasters. Its funding comes mainly from

- A company sponsorship
- B the government
- C charitable donations
- D the European Union

(Total for Question 11 = 1 mark)

12 Based on the 1998 UK Human Rights Act, UK citizens do **not** have the right to

- A a fair trial
- B a place at university
- C join a trade union
- D freedom of thought

(Total for Question 12 = 1 mark)

13 The British Crime Survey (BCS) is thought to provide more accurate figures for crime than official police figures because

- A the BCS surveys all victims of crime
- B not all crimes are reported to the police
- C all crimes are reported to the police
- D the BCS does not survey all perpetrators of crime

(Total for Question 13 = 1 mark)

14 Which of these is a white collar crime?

- A Bigamy
- B Homicide
- C Robbery
- D Fraud

(Total for Question 14 = 1 mark)



15 Which of these is a summary offence?

- A Driving without insurance
- B Burglary
- C Handling stolen goods
- D Homicide

(Total for Question 15 = 1 mark)

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

Aspirin and cancer

We already know that aspirin tablets can protect against strokes and heart problems. Research at Oxford University has now found that a daily aspirin tablet reduces cases of bowel cancer by almost a quarter and deaths due to bowel cancer by 35%. In the UK, bowel cancer affects one person in 20 and is fatal for about 16,000 people each year. A leading cancer expert argued: 'Future research will show that aspirin helps to prevent other cancers.'

16 The phrase 'bowel cancer affects one person in 20' contains

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

(Total for Question 16 = 1 mark)

17 The tablets taken by people in the research were a quarter the strength of the aspirin tablets used to treat headaches. The most likely reason for this is to reduce the probability of

- A strokes
- B heart problems
- C side effects
- D headaches

(Total for Question 17 = 1 mark)



18 If 35 people in a research sample develop bowel cancer, the most likely size of the sample is

- A** 400
- B** 500
- C** 600
- D** 700

(Total for Question 18 = 1 mark)

19 Assume that everyone in the UK takes aspirin to prevent bowel cancer. Approximately what proportion of people would be expected to develop bowel cancer?

- A** 1 in 27
- B** 1 in 20
- C** 1 in 15
- D** 1 in 7

(Total for Question 19 = 1 mark)

20 As it appears in the passage, the phrase 'Future research will show that aspirin helps to prevent other cancers' is part of an argument

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

(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 the source on the separate insert and then answer questions 21–27.

21 Use the information in paragraph 1 of the source to estimate the number of spacecraft launched into Earth orbit since 1957.

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(Total for Question 21 = 2 marks)

22 From paragraphs 1 and 2 of the source identify three different uses for satellites in Earth orbit.

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(Total for Question 22 = 3 marks)



23 There have been many large research projects where scientists have cooperated internationally.

(i) Identify one large international research project named in the source.

(1)

(ii) Using your own knowledge, identify two further large international research projects.

(2)

1

2

(Total for Question 23 = 3 marks)

24 Using your own knowledge, identify three benefits of international cooperation in large research projects.

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(Total for Question 24 = 3 marks)



25 Explain why geostationary orbits are important for some types of satellite.

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(Total for Question 25 = 4 marks)



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(includes 4 marks for Quality of Written Communication)

(Total for Question 28 = 20 marks)



29 As well as establishing a new model of the Solar System, Copernicus changed our view of the place of the Earth in the Universe. Darwin's Theory of Evolution raised similar challenges to the way in which most religions viewed humanity as God's creation.

To what extent can it be argued that scientific revolutions always lead to knowledge that is in conflict with religious beliefs?

Dotted lines for writing.



Handwriting practice area with 20 horizontal dotted lines.



(includes 4 marks for Quality of Written Communication)

(Total for Question 29 = 20 marks)

TOTAL FOR SECTION C = 40 MARKS
TOTAL FOR PAPER = 90 MARKS



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Source material

Space – Final Frontier or Ultimate Junkyard?

Since the launch of Sputnik 1 in 1957, spacecraft carrying weather satellites or other projects such as the International Space Station have been launched into Earth orbit every four days on average. Now the Earth is surrounded by space junk to the extent that some experts are predicting that it may be impossible to operate some satellites in the future.

In 2009 an old spy satellite collided with a communications satellite in geostationary orbit, at a combined speed of 40,000 km/h, creating 1400 fragments larger than 10 cm. Pieces of metal this size in a low Earth orbit can be tracked and avoided by orbiting craft. Thousands of bits of metal produced by the collision are too small to track, but can nevertheless cause serious damage. The danger is that the increased number of objects in orbit will cause an increase in the number of collisions, which in turn leads to even more pieces of debris. Like a runaway chain reaction, the number of pieces of debris could increase very rapidly once a critical point is reached.

Some 60% of satellites are now commercially funded and are put into orbit with safety shields which can absorb the impact of objects smaller than 1 cm, although the shields can also impede the functioning of the satellite, as well as using valuable capacity in launch craft. For satellites in high geostationary orbits, the much lower concentration of objects means a reduced risk of collision, although larger pieces of debris cannot be tracked from Earth. There is also an additional cost in pushing satellites into orbits which are further away from the Earth's surface.

In many ways the situation in space is similar to the problem of global warming on the surface of the Earth. Deployment of new technologies has led to unanticipated problems which recognise no national boundaries. International cooperation in developing and introducing carbon-reducing technologies has been painfully slow, partly because of the many vested financial interests. However, in the case of space junk the hope is that the business community will actively seek a solution rather than allowing the present situation to continue.