



ASSESSMENT and
QUALIFICATIONS
ALLIANCE

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GCE

General Studies B

Unit GSB3

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Kathleen Tattersall: *Director General*

Unit 3: Space

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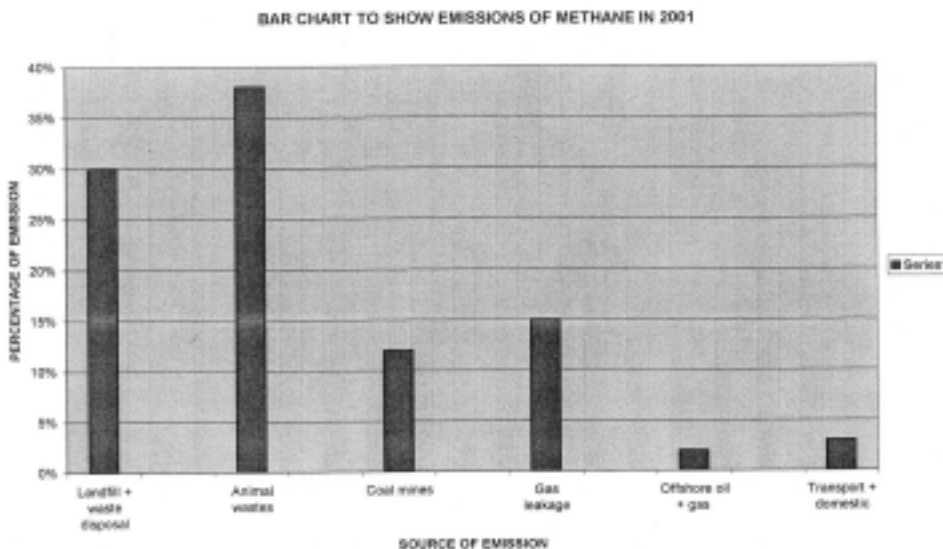
Total for this question: 30 marks

Study the two tables opposite. Table 1 shows the percentage of estimated emissions of methane and nitrous oxide gases, listed according to their source in the UK in 2001. Table 2 shows the estimated emissions of carbon dioxide gas, also by source, in the UK in 2001.

Having studied the tables, answer all the following questions:

- (a) Using Table 1 construct a bar chart showing the contribution of each source (as a percentage) to the total estimate emissions of methane for 2001 in the UK. (4 marks)
- (b) (i) The total mass of nitrous oxide emissions in the UK in 2001 was 181 thousand tonnes. Using the percentages shown in Table 1 calculate the mass of nitrous oxide emitted by production processes. (2 marks)
- (ii) Using Table 2 calculate the percentage of the total estimated emissions of carbon dioxide contributed by power station. (2 marks)
- (c) Give reasons for the differences between the figures for Road Transport and Railways (Table 2). (4 marks)
- (d) The target, agreed in Kyoto, for the emission of greenhouse gases is a 5% reduction on 2001 levels. This target should be reached by 2012. Using the tables and your own knowledge, how far is this a realistic target? (8 marks)
- (e) We know that emissions of greenhouse gases are affecting the global climate yet we are doing little to reduce these emissions. How far do you consider this to be a *moral* issue? (10 marks)

(a)



1 mark for axes and scale
3 marks for bars (–1 for each error)

4 marks

- (b) (i) $11/100 \times 181 = 19.91, 19.9, 20, 19910, 19900, 20000$ tonnes 2 marks
 1 mark if working out correct but answer is wrong
 1 mark if answer correct but unit is omitted

- (ii) $38000/137700 \times 100 = 27.596, 27.6, 28\%$ 2 marks
 1 mark for working out if answer is wrong

- (c) Expect about two or three points to be made. Allocate 2 marks plus 2 for good development of each point, or 3 marks plus 1 for some development of one of them. Candidates may gain 4 marks if they include 4 points.

Examples of points:

More car owners, therefore more pollution

Transport of heavy goods may be more likely to be made by Road rather than by Rail More convenient to use road transport because it is more direct

Difference in the fuel used for the two forms of transport

Electric engines are only indirect emitters of pollutants

The road network is vastly more extensive than the rail network.

4 marks

- (d) Marks for this question should be awarded in these bands:

Band One	7 – 8	A good to excellent response showing a clear to full understanding of the limitations of statistical knowledge and of the issues which arise from this. Expression is clear.
Band Two	4 – 6	A competent average response showing some understanding of the limitations of statistical knowledge. Expression is satisfactory.
Band Three	1 – 3	A limited response, either barely addressing the issues or showing little understanding of statistical knowledge. There will be a lack of clarity and inaccuracy of style.
Band Four	0	No response, or no relevant points.

Examples of points:

Realistic

- (a) we are all aware of the need to reduce emissions
 (b) the data in the tables suggest that we have sufficient time
 (c) yet 5% seems a small and achievable percentage
 (d) there are many types of emissions so there are a number of different ways of tackling the problem.

Not realistic

- (n) a substantial part of the problem seems to be industry, it may not be possible to manage without modification of some processes
 (o) despite education about the problem of greenhouse gases, domestic sources account for a large percentage of emissions
 (p) countries sign up to environmental protocols but do not take them seriously in practice
 (q) is there any realistic possibility of reducing nitrous oxide emissions from arable farming?
 (r) Subsequent government/policy change in a country may be a problem.

8 marks

(e) Marks for this question should be awarded in these bands:

Band One	8 – 10	A very good to excellent response showing a high level of understanding of the limitations of knowledge and of the issues which may arise from the distinction between fact and opinion. Expression is clear and logical with virtually no errors of significance in style and grammar.
Band Two	4 – 7	A competent to good response showing a level of understanding of the limitations of knowledge, though largely dependent on it. At the lower end of the band there will be a lack of distinction between fact and opinion. Expression will be satisfactory, with some weaknesses in style, expression and grammar.
Band Three	1 – 3	A limited response barely addressing the source of the issues arising. There will be very little understanding of the limitations of statistical knowledge or of the distinction between fact and opinion. There will be a lack of clarity and significant errors in style, expression and grammar.
Band Four	0	No response, or no relevant points.

Examples of points:

Moral

- (a) media keep us in constant touch with climate changes; it may become an emotive issue
- (b) governments act together to bring the problems to our attention – Kyoto conference – so we should all act together
- (c) pressure groups add to the information given to us and use emotive tactics
- (d) our money is still being spent on research so we should take an interest
- (e) we are leaving an inheritance for future generations
- (f) some species are becoming extinct because of the climate changes.

Not moral

- (n) it would not be practical, politically or economically, to switch to renewable energy sources
- (o) it is not immoral to grow rice or keep cattle; methane emissions is an unavoidable consequence of so doing
- (p) our imperfect understanding of the mechanisms of climate change justifies a conservative policy
- (q) some nations may not be able to rectify their industrial productions of fuel usage because of the nature of their politics, governments, religions.

10 marks

2

Total for this question: 30 marks

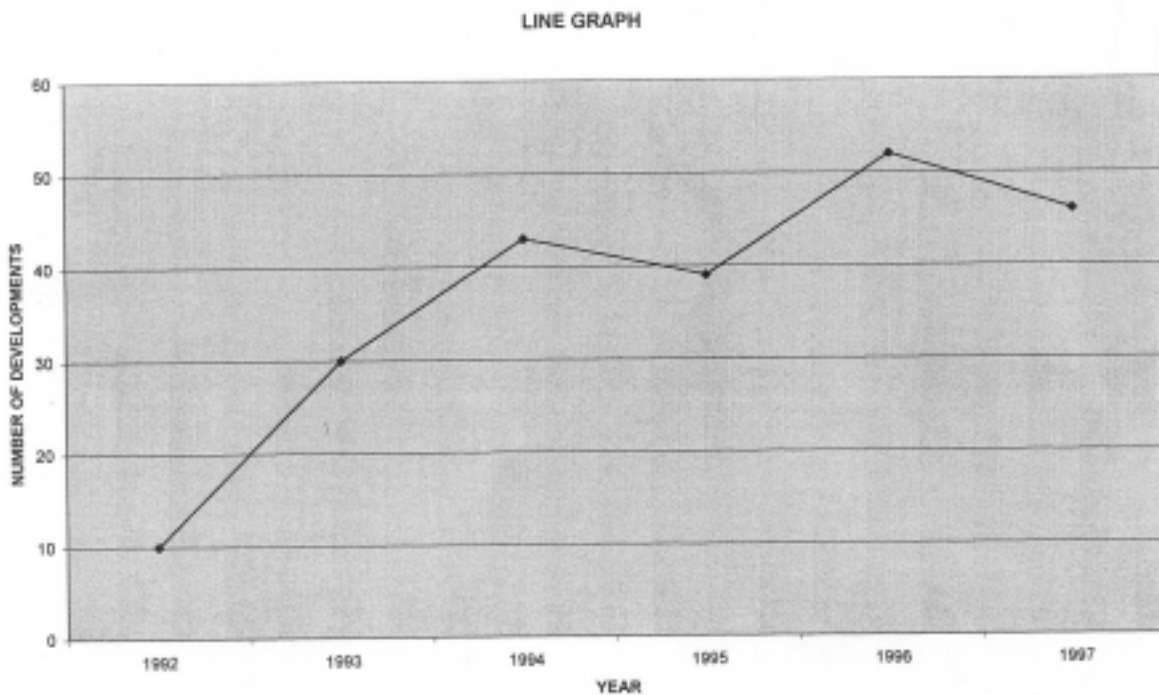
Study the two tables opposite. Table 3 shows the number of out-of-town developments in the UK from 1989 to 1999. Table 4 is a graph showing the life span trend of small businesses, reported in July 1999.

Having studied the tables, answer all of the following questions:

- (a) (i) Using Table 3 construct a line graph showing the number of out-of-town developments for the years 1992 – 1997 inclusive. (4 marks)
- (ii) Give reasons for the difference the figures for the years 1989 and 1992 (Table 3). (4 marks)
- (b) (i) Using Table 3 what was the percentage decrease of developments between 1989 and 1999? (2 marks)
- (ii) Using Table 3 what was the percentage of the total number of developments shown in the table were completed in 1993? (2 marks)
- (c) Using Table 4 and your own knowledge what deductions might be made about the trend shown in the graph? (8 marks)
- (d) “Out-of-town business developments are having a damaging effect on town-centre businesses”. To what extent is this a valid assertion? (10 marks)

- (a) (i) 1 mark for axes and scale
3 marks for plotting points and line

4 marks



- (ii) Expect about two or three points to be made. Allocate 2 marks plus 2 for good development of each point, or 3 marks plus 1 for development of one of them. Candidates may gain 4 marks if they include 4 points.

Possible economic problems in 1992

Demand was satiated at the outset

Smaller developments may have been built in preference and will not show in the data

There may have been a problem in some areas with respect to the availability of land for development use.

4 marks

- (b) (i) $35/74 \times 100 = 47.297, 47.3, 47\%$

1 mark if working out correct but answer is wrong

2 marks

- (ii) $30/434 \times 100 = 6.91, 6.9, 7\%$

1 mark if working out correct but answer is wrong

2 marks

- (c) Marks for this question should be awarded in these bands:

Band One	7 – 8	A good to excellent response showing a clear to full understanding of the limitations of statistical knowledge and of the issues which arise from this. Expression is clear.
Band Two	4 – 6	A competent average response showing some understanding of the limitations of statistical knowledge. Expression is satisfactory.
Band Three	1 – 3	A limited response, either barely addressing the issues or showing little understanding of statistical knowledge. There will be a lack of clarity and inaccuracy of style.
Band Four	0	No response, or no relevant points.

Examples of points:

- small businesses are finding it difficult to compete
- costs are much higher pro-rata for small businesses
- skilled labour may be difficult to find in some areas
- two-thirds of small businesses do not seem to be able to last for more than 6 years
- the report was made in one year, but the figures may be based on previous trends
- not all bright ideas translate into successful businesses
- other businesses might exploit an idea more effectively.

(8 marks)

(d) Marks for this question should be awarded in these bands:

Band One	8 – 10	A very good to excellent response showing a high level of understanding of the limitations of knowledge and of the issues which may arise from the distinction between fact and opinion. Expression is clear and logical with virtually no errors of significance in style and grammar.
Band Two	4 – 7	A competent to good response showing a level of understanding of the limitations of knowledge, though largely dependent upon it. At the lower end of the band there will be a lack of distinction between fact and opinion. Expression will be satisfactory, with some weaknesses in style, expression and grammar.
Band Three	1 – 3	A limited response barely addressing the source of the issues arising. There will be very little understanding of the limitations of statistical knowledge or of the distinction between fact and opinion. There will be a lack of clarity and significant errors in style, expression and grammar.
Band Four	0	No response, or no relevant points.

Valid

- (a) figures in Table 3 show a decrease in terms of how long a small business can survive, so larger out-of-town businesses may thrive longer
- (b) industries and businesses which are based on the outskirts of a town/city will attract customers from a larger area
- (c) transport and parking is easier, as are motorway links
- (d) rent may be cheaper out of town, expansion is certainly possible
- (e) transport may be provided for the workforce.

Not valid

- (n) in some areas, local businesses are passed down through a family, so survive longer locally
- (o) cultural ties will be stronger in areas where there are ethnic mixes
- (p) there is a stronger social aspect to the 'corner shop'
- (q) there are small-scale business groups emerging in some inner cities where dock lands are set aside for customers
- (r) the data only shows developments, it does not show types of development
- (s) the fact that we are encouraged to be environmentally friendly may mean the end of driving a longer distance to shop.

(10 marks)

Distribution of Assessment Objective marks

Question Number		1	2	AO marks per unit
Assessment Objectives	1	10	10	20
	2	4	4	8
	3	8	8	16
	4	8	8	16
Total marks per question		30	30	60