GCE 2005
January Series

AQA

ASSESSMENT and
QUALIFICATIONS
ALLIANCE

Mark Scheme

General Studies Specification B

Unit GSB3 – Space

Mark schemes are prepared by the Principal Examiner and considered, together with the relevant questions, by a panel of subject teachers. This mark scheme includes any amendments made at the standardisation meeting attended by all examiners and is the scheme which was used by them in this examination. The standardisation meeting ensures that the mark scheme covers the candidates' responses to questions and that every examiner understands and applies it in the same correct way. As preparation for the standardisation meeting each examiner analyses a number of candidates' scripts: alternative answers not already covered by the mark scheme are discussed at the meeting and legislated for. If, after this meeting, examiners encounter unusual answers which have not been discussed at the meeting they are required to refer these to the Principal Examiner.

It must be stressed that a mark scheme is a working document, in many cases further developed and expanded on the basis of candidates' reactions to a particular paper. Assumptions about future mark schemes on the basis of one year's document should be avoided; whilst the guiding principles of assessment remain constant, details will change, depending on the content of a particular examination paper.

Unit 3   (GSB3 Space)

**1**   **Total for this paper:** *60 marks*

Look carefully at Sources 1, 2, 3 and 4. Source 1 shows miles travelled per person per year on various forms of transport. Source 2 shows weekly total household expenditure on transport in 2001. Source 3 shows average number of days of moderate or higher air pollution in the UK for 1993-2002. Source 4 shows road lengths by region in 2000.

Having studied the sources answer all of the following questions.

(a)   Using Source 1 draw a bar chart showing the difference in miles travelled per person by mode of transport between 1992-1994 and 1999-2001.   *(6 marks)*

(b)   Using Source 1 and your bar chart comment on the differences and suggest reasons why they have happened.   *(6 marks)*

(c)   **(i)**   What percentage of the total expenditure for households in the North East is spent on insurance and taxation? (Source 2)   *(2 marks)*

(ii) The weekly expenditure on fuel in the West Midlands in 2000 was £14.20. Work out the percentage increase for this expenditure from 2000 to 2001. (Source 2)   *(2 marks)*

(iii) What is the mean weekly expenditure on total weekly transport costs in East England, South East, London and the South West? (Source 2)   *(2 marks)*

(d)   Suggest and explain reasons for the generally decreasing trends shown in the graph in Source 3.   *(9 marks)*

(e)   Why might the data in Source 3 be of limited value?   *(9 marks)*

(f)   The introduction of tolls on motorways may help to reduce many of our transport and pollution problems. How far do you agree with this view?   *(12 marks)*

(g)   Industry and business should only be located in or near major towns and cities. To what extent do you agree with this assertion?   *(12 marks)*

1   **(a)**
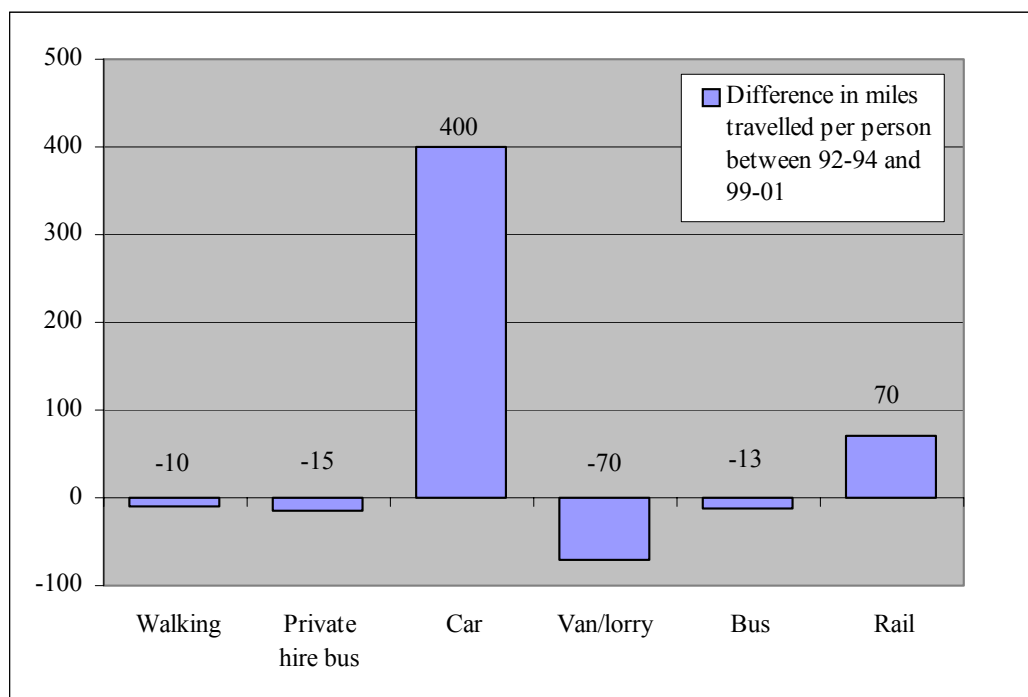
Bar chart
2 marks for scales and labelling
4 marks for bars correctly drawn.   (6 marks)

(b)   Expect about three main differences with supporting reasons, 3 x 2 marks

Examples of points:

- Dramatic increase in car use - more families own more than one car and it is a more convenient mode of transport
- Or because more people may live further away from their work
- More young people do paid work and may drive to college/university
- Small increase in use of rail – may only be small because the reliability and cost of rail travel still an issue
- Decrease in use of van/lorry – may be because of congestion on motorways

                                                                                              (6 marks)

(c)   **(i)**   5.70/38.90 x 100 = 14.65, 14.7, 15%
                     1 mark if working out is correct but answer is wrong   (2 marks)

         (ii)   (15.90 – 14.20) / 14.20 x 100 = 11.97, 12%
                     1 mark if working out is correct but answer is wrong   (2 marks)

         (iii)   239.09/4 = £59.77
                     1 mark if working out is correct but answer is wrong
                     1 mark if answer correct but units not included   (2 marks)

(d)   Levels mark scheme:

Band One   7 – 9   A good response showing an understanding of the issues
                           which arise from this. Expression is clear.

Band Two   4 – 6   A competent response showing some understanding of the
                           issues. Expression is satisfactory.

Band Three   1 – 3   A limited response, either barely addressing the issues. There
                           may be a lack of clarity and inaccuracy of style.

Band Four   0   No response, or no relevant points.

Examples of points:

(a)   Increased public awareness of pollution problems

(b)   Constant media coverage highlights awareness

(c)   Government initiatives to reduce pollution

(d)   Kyoto agreement and international cooperation

(e)   Dramatic decrease after 1999 probably coincides with new initiatives

(f)   Urban sites have shown much lower values since 1999 and are still reducing as
        new laws are passed and fines are imposed on industry/businesses for pollution

(g)   Climate change

(h)   New technology (e.g. catalytic converters, more efficient engines and the use
        of low sulphur fuels) has been introduced which has less pollutants as a by-
        product

(i)   Manufacturing has decreased.

(e)   Levels mark scheme:

Band One   7 – 9   A good response showing an understanding of the limitations of statistical knowledge and of the issues which arise from this. Expression is clear.

Band Two   4 – 6   A competent response showing some understanding of the imitations 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 may be a lack of clarity and inaccuracy of style.

Band Four   0   No response, or no relevant points.

Examples of points:

(a)   There is no reference to any particular areas of the UK and where the sites are located

(b)   The definition of urban and rural is not made clear

(c)   There is no vertical scale to read off and project from

(d)   The graph does not indicate what the requirements are for moderate or higher air pollution

(e)   The two graphs superimposed do not make it easy to see the overall picture

(f)   There is the possibility of more industry in urban areas

(g)   There is no indication as to the sources of pollution.

(f) **Levels mark scheme:**

Band One 9 – 12 A good response showing a clear 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 few errors of significance in style and grammar.

Band Two 5 – 8 A competent response showing understanding of the limitations of knowledge, though dependent on it. At the lower end of the band there may be a lack of distinction between fact and opinion. Expression is satisfactory, with some weaknesses in style and grammar.

Band Three 1 – 4 A limited response barely addressing the source of the issues arising. There may be little understanding of the limitations of statistical knowledge or of the distinction between fact and opinion. There is a lack of clarity and significant errors in style, expression and grammar.

Band Four 0 No response, or no relevant points.

Examples of points:

Agree:

(a) The amount of urban pollution is already falling and therefore the use of tolls may deter people from using the built up areas of the network

(b) Tolls would allow us to make motorway travel more convenient with extra facilities

(c) Drivers may be prepared to pay the toll as it is likely to shorten their journey rather than the usual build up of traffic (M5/M6 and new Birmingham toll road)

(d) There might be less congestion and therefore less pollution if there are less traffic jams

(e) On the continent the toll system appears to provide a good service

(f) Businesses may be prepared to pay extra to improve the transport of their goods

(g) The toll system is already in place for some bridges and tunnels so it is not a new concept for transport

(h) Reduced transport costs could lead to lower prices of goods.

Disagree:

(n)   Source 4 shows the road lengths in the UK so there is an extensive network of motorways to be considered in terms of bringing in revenue from a toll but it may not be used for improvements

(o)   There would be an initial investment cost which would more than likely come from the taxpayer

(p)   Congestion and therefore pollution will not be solved

(q)   The present Birmingham toll road is privately owned which may be a better option than government controlled

(r)   Recent German tolls on motorway are a disaster

(s)   The UK needs a holistic "joined up" transport policy

(t)   Toll motorways would require new build and therefore take up more space in a crowded island.

(g)   Levels mark scheme:

Band One   9 – 12   A good response showing a clear 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 few errors of significance in style and grammar.

Band Two   5 – 8   A competent response showing understanding of the limitations of knowledge, though dependent on it. At the lower end of the band there may be a lack of distinction between fact and opinion. Expression is satisfactory, with some weaknesses in style and grammar.

Band Three   1 – 4   A limited response barely addressing the source of the issues arising. There may be little understanding of the limitations of statistical knowledge or of the distinction between fact and opinion. There is a lack of clarity and significant errors in style, expression and grammar.

Band Four   0   No response, or no relevant points.

Examples of points:

Agree:

(a)   Traffic and noise pollution in the locality would increase

(b)   Some industries/business may not be able to afford to move their workforce out of town

(c)   Different <u>types</u> of pollution would increase e.g. waste disposal pollution

(d)   The rural area may not have the necessary raw materials needed or be accessible

(e)   Rural pollution would increase if sites were moved away from centres – Source 3 shows it is decreasing so this would be a further problem.

Disagree:

(n)   Industry and business should find the overheads cheaper in rural sites

(o)   Buying land would be cheaper out of town

(p)   This would keep most of the pollution from the chemical industry, for example, out of the urban environment

(q)   If transport links to sites were improved then people would be able to avail themselves of public transport rather than using cars pollution may decrease

(r)   Some industry is better sited near essential natural resources e.g. water supply or access to the sea.

Approximate distribution of Assessment Objective marks across Unit 3

Question 1		AO marks per unit
Assessment Objectives	**AO1**	**20**
	AO2	**8**
	AO3	**16**
	AO4	**16**
Total marks per Question		**60**