



Cambridge Assessment Admissions Testing

BMAT Section 1 question guide

SECTION 1

In Section 1, you will have a range of skills and aptitudes tested. These are all skills that are useful in any undergraduate study. They are referred to as Problem Solving, Understanding Argument and Data Analysis & Inference. Here we will guide you through the different types of question, look at some examples, and give some advice and tips on how to approach Section 1 questions.

To fully prepare for Section 1, you should read through this advice to become familiar with the style of questions, look through some papers with worked answers, and then try practising doing some past papers under timed conditions.

Section 1 has 35 multiple-choice questions, which are to be answered in 60 minutes. On average, you will have less than two minutes to read through the question and work out the answer. BMAT is designed to give you enough time to answer all of the questions if you work efficiently. So remember that if you are finding it difficult to make progress with a question, move on to a different question and then come back to the question later on. You are not restricted to doing the questions in the order that they appear on the question paper. Sometimes, the best strategy can be to focus on particular types of question depending on your own strengths. However, as each question is worth one mark and there is no negative scoring for incorrect answers, you should attempt every question.

Remember that you can write on the question paper itself. As questions require you to select relevant information, pick out key statements, perform calculations without the use of a calculator, etc., you can underline words, circle numbers, cross out options and even draw diagrams on the question paper. Space has deliberately been provided for you to use in this way.

Problem Solving

Problem Solving involves reasoning using numerical and spatial skills. The actual numerical and mathematical reasoning required for these questions is quite simple (certainly not at the same level as required for the mathematics questions in Section 2).

Questions are of three kinds, each assessing a key aspect of insight into unfamiliar problems. These are:

- selecting relevant information
- recognising analogous cases
- applying appropriate procedures.

Although most questions fall into one category, some questions fit into more than one of the categories and will require you to use a mix of skills and approaches to solve them.

Selecting relevant information

Often a real-world problem will be overloaded with information, much of which is unimportant. The first step in solving the problem is to decide which bits of the information available are important. It may be that the question has presented you with information which is not important, perhaps redundant and possibly distracting. This kind of question demands relevant selection, in which the task is to select only that information which is necessary and helpful in finding a solution and applying it.

Recognising analogous cases

In each of these questions you will be presented with information and asked to identify the same information presented in a different way, or the question will present a situation in which different information has a similar structure. Many of these questions can involve spatial reasoning ability.

Applying appropriate procedures

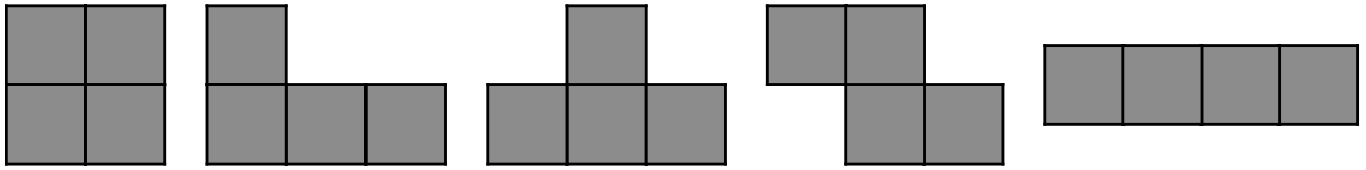
Sometimes you will find that even when you have selected all of the relevant information, no obvious solution presents itself. You then have to find a method or procedure which you can use to generate a solution from the information in the question. Typically you will have three or four numbers which have to be operated on in some way, or you will need to perform an operation a number of times.

Problem Solving Tips

- Many Problem Solving questions ask you to deal with a large problem. You can be left thinking: “How can I possibly get to that answer?”. Breaking things down into a step and/or a series of simpler calculations makes the problem more accessible and allows you to make clear progress towards the solution.
- There is always only one correct answer to a question. If you have quickly reached an answer, make use of your time by checking each of the other options to reassure yourself that you have the correct answer
- For some problems, it can be difficult to know just where to start, particularly where there are many unknowns. Picking somewhere to start while keeping your options open can help you make progress. Just like working on a sudoku puzzle, you sometimes have to keep two or more possibilities open until one can be eliminated.
- Always bear in mind that the questions are not designed to trick you. They do require some lateral thinking and the ability to spot patterns in the data. But if you are finding your calculations produce some awkward numbers then you might need to simplify by estimating – or even consider the possibility that you are on the wrong track.
- For some problems, re-arranging the information or presenting it in a different way can show you some relationships or connections that were not clear. Use the question paper to draw a diagram or put some figures into a table.
- There can be a lot of additional information and context given in the question. Sometimes you need to extract the relevant information, eliminate some options and abstract the important elements. Even just re-working the question to use a single letter instead of a name can be a useful tactic.

Sample Problem Solving questions (answers are on p.6)

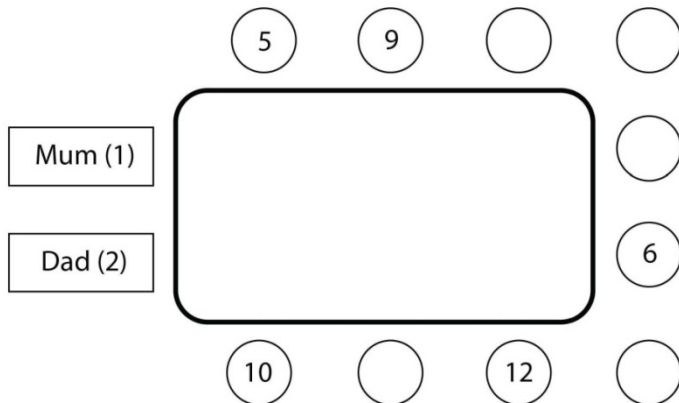
- 1 I want to create a simple jigsaw puzzle. I have five pieces as shown below. Each piece is made from four identical squares. I want to choose three of the pieces to make up either a 4×3 rectangle or a 6×2 rectangle.



How many choices do I have for the three different pieces?

- A 0
- B 1
- C 4
- D 9
- E 10

- 2 A group of ten teenagers attending a meal are each given a card numbered from 3 to 12 as they arrive at the venue. The card is to be used to find their places at the table when it is time for the meal. Some of the places at the table already have the numbers showing but the teenagers have to solve the problem of where the rest of them should sit in order to meet a list of criteria given to them by their host. The partial seating plan is shown below:



The remaining guests must sit in places such that the sum of any four place numbers that fall in a straight row makes 29.

What will be the number of the person sitting opposite number 9?

- A 3
- B 4
- C 7
- D 8
- E 11

- 3 Simon, Liam, Ian, Dylan and Eric make up the boy band Slide. Their surnames are Doyle, Floyd, Hyde, Rush and Shore, but I can't remember which surname goes with which first name.

My friend tells me that no letter of the alphabet appears twice in any of the boys' full names (first name and surname combined) and the surname of each boy has a different number of letters from his first name.

What is Ian's surname?

- A Doyle
- B Floyd
- C Hyde
- D Rush
- E Shore

- 4 Al was looking at Beth (and only at Beth); but Beth was looking at Charles. Al was married; Charles was unmarried.

Dave was given the above information and asked whether, out of these three people, anyone married was looking at anyone unmarried. He was asked to answer: 'Yes', 'No', or 'Cannot be determined from the information'; and to give a reason for his answer.

Dave answered correctly, giving one of the following responses. Which one was it?

- A It couldn't be determined because it was not stated whether Beth was married or unmarried.
- B No, because Charles was unmarried and Al was looking only at Beth.
- C Yes, because Beth was either unmarried and being looked at by Al or she was married and looking at Charles.
- D No, because although it was not stated whether Charles was looking at anyone, Charles was unmarried anyway.
- E Yes, if Beth was unmarried, but No if she was married; so it could not be determined.

Problem Solving answers

1 If the first shape is used, then it must be at the end of the 6×2 rectangle, meaning that the remaining region will have to be split into two identical pieces.

Similarly, if the final piece is used then it will have to be along an edge of the 4×3 rectangle, meaning that the remaining region will have to be split into two identical pieces. It is then quite easy to check that the remaining three pieces cannot be arranged to form either of the rectangles.

B Identifies the problem with two of the pieces and assumes that the other three can be used.

C Identifies the problem with one piece and assumes that any choice from the other four will be OK.

D Identifies a case that does not work and assumes that the rest will be OK.

E Assumes that all choices of three pieces will be OK.

The answer is **A**.

2 One way to solve this is to start by looking at each row and calculate what the numbers add up to.

For the bottom row, we can see that the numbers add up to 22, so the missing numbers must add up to 7 ($29-22$). As numbers 1, 2, 5 and 6 are already in place, these must be

3 and 4 but at this stage we don't know which goes where.

Looking at the top row, the missing numbers must add up to 15. The only possibilities here would be 7, 8 or 11 so they must be 7 and 8.

Therefore, number 11 must be above number 6. Which means that our side column must be: 7 or 8, 11, 6, 3 or 4

7, 11, 6, 3 do not add up to 29

7, 11, 6, 4 do not add up to 29

8, 11, 6, 3 do not add up to 29

8, 11, 6, 4 do add up to 29 so they must form the side column.

Top row would then be 5, 9, 7, 8. Bottom row would be 10, 3, 12, 4. So number 3 is opposite number 9. The correct answer is **A**.

3 Every surname has a different number of letters from Ian and would produce a full name with no letter repeated. However, the others can only be Simon Hyde, Liam Shore, Dylan Rush and Eric Floyd. The answer is **A**.

4 The answer is **C**. Beth is the crucial character. It may appear that an answer cannot be determined because, as in **A**, we are not told Beth's marital status. But it must be one or the other, and on reflection it doesn't matter which it is. Either the married Al is looking at an unmarried Beth or a married Beth is looking at the unmarried Charles. Either way, the correct answer is Yes, and **C** explains it. **B**, **D** and **E** go for the wrong answer, and their explanations fail.

Understanding Argument

Understanding Argument questions, sometimes referred to as Critical Thinking, typically have a paragraph of informative text presenting an explanation or argument for a particular conclusion. You will usually be asked to:

- identify reasons, assumptions and conclusions
- evaluate an explanation or detect flaws in the argument
- draw conclusions from the paragraph.

When you are reading through the paragraph, it can be useful to identify different elements so that you can see the structure of the reasoning and particularly see the reasons that lead you to a conclusion. Identifying the reasons and the main conclusion is an important part of understanding the structure of an argument.

Identifying the main conclusion

The important step in any Understanding Argument question is to read the passage carefully and either pick out a sentence which is the conclusion or for you to reason through the argument to come to a conclusion. You may be asked to identify which option expresses the main conclusion. If you are being asked to draw a conclusion from the paragraph then you will need to think about whether the information in the passage gives you good reasons to accept one of the statements in the options. Remember that the conclusion can appear anywhere within an argument and will not necessarily be at the end. Also, what you are looking for is the statement which follows from, or is supported by, the rest of the passage.

It may be helpful to ask yourself: “What is the main message which this passage is trying to get me to accept?”. When you think you have answered this question, underline the sentence which expresses this main message, then look to see if the rest of the passage gives you reasons for believing this. Sometimes a passage may have an intermediate conclusion which is just one of the steps in the reasoning towards the main conclusion. Be careful to check this. If the sentence you have underlined gives you reason to believe some other statement in the passage, then it will not be the main conclusion. Do not worry about whether the reasons are true. Just ask yourself: “If these reasons were true, would they give me good reason to accept the sentence I have underlined?”.

Identifying an assumption

Some questions will ask you to identify an assumption in an argument. An assumption is something which is not stated by the author but which is taken for granted in order to draw the conclusion. So you need first to identify the conclusion of the argument. Then look for the reasoning it gives to support this conclusion, and think about any important point which is not actually stated in the reasoning.

Assessing the impact of additional evidence

Some questions will ask you to consider what would weaken or strengthen an argument or the reasoning. You need to be clear about what the passage is trying to establish. Work out what the conclusion is and then consider what effect each of the possible answers would have on the conclusion.

Detecting flaws in the argument

This type of question asks you to identify the reasoning error being made, which means that you must identify why the conclusion does not follow from the reasons given. You need to be clear about what the conclusion is and what reasons are meant to support it. Ask yourself *what* the main point is which the passage is trying to establish, and then *how* it tries to establish it.

Understanding Argument Tips

- Look at what the question is actually asking you to do, so you know what to look for when you read through the passage. Make sure you read the whole text to be clear about what is being argued and what conclusion it is trying to reach.
- Look for claims which sound a bit more controversial and less like facts/ common sense opinion – these are likely to be conclusions. If any of the other claims in the passage give reasons to believe them, then they are definitely conclusions.
- Sentences beginning with words such as ‘So’ or ‘However’ are likely to be the conclusion (or an intermediate conclusion). If you are unsure which of two claims are the main conclusion, try the ‘therefore’ test. Read one of the claims, then add therefore and read the other claim. Then try it with the claims the other way round. If it makes sense to say that A therefore B, but doesn’t make sense to say B therefore A, then you have found your main conclusion.
- To understand an argument better, it can be helpful to think briefly about why the conclusion(s) might *not* follow from the reasons given – think about why the reason(s) could be true and the conclusion false. This can help you think of the things that can go wrong in an argument and hopefully will help you eliminate some of the options.
- When you are asked to draw conclusions, read the information carefully, and then carefully choose the claim which:
 - follows from, or is consistent with, all the information in the passage, not just part of it (there may be options which follow from parts of the passage, but which go against other parts of the passage);
 - tells you something that hasn’t been directly said already (it must be inferring something, not repeating something);
 - does not go too far beyond what has already been said (if it’s clearly possible for the information in the passage to be true and yet the claim to still be false, then it will not be a valid conclusion that can be drawn).
- When there are different combinations of conclusions that can be drawn, *do* accept that it *could* be that all are correct; however, take a moment to think whether or why one or more of them could be challenged/objected to – sometimes first instincts are not always right!
- Sometimes the further evidence might strengthen or weaken a key claim in the argument on which the conclusion rests, rather than relate directly to the conclusion. To decide if something strengthens or weakens a theory, don’t ask whether we can infer the theory from the evidence; ask whether, if the theory *were* true, we might infer (i.e. expect to see) the existence of this evidence.
- Remember an assumption is something not directly stated in the argument but which is needed alongside the reasoning. To check if something is an assumption, ask what effect it would have if it was false. If the argument would no longer work at all, it is the right answer (if it might ever so slightly weaken but not destroy it, the argument would still work, so it probably is not an assumption.) Don’t confuse assumptions with further implications that would be true if the argument was accepted – assumptions are what you need to get *to* the conclusion.

Sample Understanding Argument questions (answers on p.11)

- 1 Is forgery “art”? Received opinion says not, despite it unquestionably being a craft. This has nothing to do with it being illegal or immoral, though it may be both. The standard objection is that it is copying, and therefore not creative. But how is that an objection when all art is ultimately a copy of something? Is a picture of a ship or a hay-wagon or a bowl of fruit not art? If all art is copying, then forgery, by definition, is art.

Which one of the following makes the same reasoning error as the above argument?

- A** Water is liquid and liquid is fluid, so water is a fluid.
- B** Petrol is flammable and volatile, so everything volatile is flammable.
- C** Being overweight is unhealthy so maintaining the right weight is healthy.
- D** The French are European and Spaniards are European, so the French are Spaniards.
- 2 The brain disease vCJD was caused by eating beef from cattle infected with BSE. Susceptibility to this type of disease amongst humans is associated with a particular gene. There are two variants of this gene – M and V, so there are three possible combinations that we can inherit – M-M, M-V and V-V. All infections so far in the UK have been in young people with the M-M combination. Most victims of a similar disease in Papua New Guinea also had the M-M combination and were also young, but a group who developed it later in life all had the M-V combination. Therefore the gene variants one inherits determine the incubation period for such diseases. So there will be two further outbreaks of vCJD, as those who consumed infected beef grow older.

Which of the following is an assumption underlying the above argument?

- 1 Most of the population have eaten beef infected with BSE.
- 2 Inheriting the V variant prevents infection with vCJD.
- 3 Inheriting the M variant is not necessary for susceptibility to vCJD.
- A** 1 only
- B** 2 only
- C** 3 only
- D** 1 and 2 only
- E** 1 and 3 only
- F** 2 and 3 only
- G** None of the statements

- 3** A neutrino is an elementary particle that is able to pass through ordinary matter, but is difficult to detect. Physicists have hypothesised that there is a particular type of neutrino – a sterile neutrino – that cannot be detected at all by their instruments. Relevant evidence comes from supernovae, i.e. exploding stars. If sterile neutrinos did exist, supernovae would shoot them out, and the recoil from this blast would send pulsars (rotating stars that emit a beam of electromagnetic radiation) travelling at high speed through the universe. It turns out that astronomers observe precisely that: pulsars whizzing through the universe at speeds of thousands of kilometres per second.

Which one of the following is a conclusion that can be drawn from the above passage?

- A** Sterile neutrinos must be the cause of the phenomenon of pulsars travelling at high speed through the universe.
- B** The phenomenon of pulsars travelling at high speed through the universe could be caused by the existence of sterile neutrinos.
- C** The sterile neutrino hypothesis is the best explanation of the phenomenon of pulsars travelling at high speed through the universe.
- D** If sterile neutrinos did not exist, pulsars would not be observed travelling at high speed through the universe.
- 4** Patients admitted to hospital as an emergency at the weekend have a higher chance of dying than those who are brought in during the week, according to a study which showed that the death rate among emergency admissions increased by 7% at the weekend.

Staffing levels are often lower at weekends, with fewer senior medical staff around, and some specialist services are less available. This may be contributing to the increase in mortality rates on Saturdays and Sundays. As well as lower staffing levels in hospitals, there may be a reduced service in specialist community and primary care services at the weekend, which may result in some terminally ill patients being admitted to hospital and dying there (instead of at home) at the weekends.

Which of the following could be drawn as a conclusion from the passage above?

- 1** Improved staffing levels in hospitals at weekends would reduce death rates.
- 2** Weekend provision of community and primary care services should be enhanced.
- 3** Fewer patients should be admitted to hospital at times when staffing levels are low.
- A** 1 only
- B** 2 only
- C** 3 only
- D** 1 and 2 only
- E** 1 and 3 only
- F** 2 and 3 only
- G** none of the above statements

Understanding Argument answers

1 The core of the argument is that forgery is copying and (but) *art* is copying so forgery is art. Formally this is:

F is C; A is C; so F is A

which is invalid. **D** has the same form and is clearly in error

A is valid, so it is not in error.

B makes a different error, generalising from the particular.

C has the form: O is not-H, so not-O is H, which is not the same as the passage.

The answer is **D**.

2 The argument uses evidence from a disease which occurred in Papua New Guinea. The disease was similar to vCJD, and affected two groups – young people with the M-M gene variant, and older people with the M-V variant. On this basis it draws the intermediate conclusion that the gene variants determine the incubation period of the disease. The main conclusion is that as the population exposed to infected beef ages, two further outbreaks may occur. These would have to be amongst the other two groups of the population, i.e. those with the M-V variant and those with the V-V variant, on the assumption that both are at risk but that the incubation periods are longer. Thus in assuming that those with the V-V variant may get the disease, it must be assuming that one can be susceptible to vCJD without inheriting the M variant. This is expressed in statement 3.

Statement 1 is not assumed, since there could be two future outbreaks of vCJD even if only a minority of the population had eaten infected beef, provided that this minority included members of both the M-V and V-V groups.

Statement 2 is not assumed, since the conclusion implies that those with one or two V variants could get the disease. Thus it is not assumed that the V variant protects against becoming infected with the disease, simply that it increases the incubation period.

The answer is **C**.

3 The passage asserts that if sterile neutrinos exist, pulsars would travel at high speed through the universe, and that pulsars have been observed doing exactly that. It follows that the hypothesis of physicists that sterile neutrinos exist could be true, and that these neutrinos could be causing this phenomenon.

A does not follow from the passage, because the assertions 'P implies Q' and 'Q is true' do not imply that P is true. So we cannot conclude that sterile neutrinos do exist, and therefore cannot conclude that they must be the cause of the observed phenomenon.

C does not follow from the passage, because it contains no information about other possible explanations of the phenomenon.

D does not follow from the passage, because the assertion 'P implies Q' does not imply that 'not P' implies 'not Q'.

The answer is **B**.

4 Reason 1: Death rates in hospitals are higher at weekends than on weekdays.

Reason 2: Staffing levels are often lower at weekends and access to senior staff and specialist resources tend to be limited.

Reason 3: Reduced community services at weekends may lead to more terminally ill people being admitted to hospital and dying there.

None of the three statements can be drawn as a conclusion from this evidence. The passage says that lower staffing levels (Reason 2) *may* be contributing to higher death rates but it is not conclusive, therefore 1 cannot be concluded.

Statement 2 goes too far in moving from a possible link between reduced community services (Reason 2) and higher admissions of terminally ill people to a conclusion that community services *should be* improved. For this to be concluded, an assumption would be needed that dying at home is preferable to dying in hospital.

Similarly Statement 3 assumes that hospital admission should be avoided, without evidence that this is necessarily less desirable even if staffing levels are low.

The answer is **G**.

Data Analysis & Inference

For these questions, you are typically given either a long passage of text or some graphical data. You will answer four or five questions associated with it. These questions require the use of information skills (vocabulary, comprehension, basic descriptive statistics and graphical tools), data interpretation, analysis and scientific inference and deduction to reach appropriate conclusions from information provided in different forms, namely:

- textual
- statistical
- graphical.

The questions will test a variety of skills; in some cases they will be very similar to the Problem Solving and Understanding Argument questions in this section. But they also test your ability to make sense of and draw conclusions from a larger amount of data, to model simple situations and to investigate and evaluate.

Data Analysis & Inference Tips

- You can apply many of the same approaches to these questions as you would use with the Problem Solving and Understanding Argument questions in Section 1. It is important to read the whole passage or data-set provided, so you have an overall awareness of the topic and know where to find information and a clear idea of what conclusions are being drawn.
- The passages will normally not only interpret the presented data but also come to a conclusion or judgement about it. The questions then encourage you to inspect the data from a different perspective or critically analyse the argument based on information in the passage.
- While these sets of questions will require you to read through more information than the other questions on the paper, bear in mind that you will be answering four or five questions on the same set of information, so there is actually no more reading involved than with the other questions.
- Each of the questions is self-contained. They do not require the answers from any of the other questions. So even if you are unsure about one question, you can still answer the others.
- The questions will often ask you to work with the information presented in the same order as within the text. Sometimes the question will even specifically direct you to a particular part of the text, e.g. paragraph 2, table 3. This is helpful as you won't need to search through the entirety of the text or data for the information you need.
- Finally, bear in mind that while the questions will appear very similar in style to some of the Problem Solving or Understanding Argument questions in Section 1, they are also designed to test your abilities to analyse larger amounts of information and they will often ask you to evaluate the conclusions drawn in the text or to draw further conclusions from the data.

Sample Data Analysis & Inference questions (answers on p.16)

Questions 1 – 4 refer to the following information:

Are Britain's roads getting safer? By Lucy Wilkins, BBC News

The first recorded road death in a motor accident in Britain was in London over 100 years ago. More than a century on, roads may be busier than ever – but are they any safer?

On 17 August, 1896, a South London housewife entered the history books by being run over. Bridget Driscoll, 44, became the first person recorded to have died in a motor accident in Britain. The 20-year-old driver was a car company worker, and there were reports he had adjusted the engine to increase its maximum speed to 8mph. Ever since that first death – and the first recorded death of a driver 18 months later – the number of vehicles on the roads has multiplied.

Increasing number of vehicles

According to the Department for Transport (DfT), in 1930 there were only 2.3 million motor vehicles in Great Britain, but more than 7,000 people were killed in road accidents. In contrast nowadays there are more vehicles but fewer deaths – there are 27 million vehicles and 3,180 people were killed in the 12 months to March this year, provisional results show.

The DfT is meeting its 10-year safety target of cutting the number of road accident deaths and injuries to 40% of the 1994–98 average – 319,928 casualties. Five years into the policy, the statistics show casualties are 33% below the earlier average. In actual numbers, 268,900 people were either injured or killed in the 12 months to this March.

But are Britain's roads really becoming safer? The statistics paint a confusing picture

Many road accidents, where there are slight injuries or even more severe ones, bypass police records. This could be because some of the people involved in accidents do not want to tell the police because they are uninsured, unlicensed or drunk, says head of road safety at the AA Motoring Trust, Andrew Howard. But even if injuries are reported, it does not mean the police will record them. The severity of the injury will also be underestimated, research in the 1990s suggested.

“The combined effect of under-reporting, under-recording and misclassification suggests that there may be 2.76 times as many killed or seriously injured casualties than are recorded in the national casualty figures and 1.70 times as many slight casualties,” the DfT says.

In June, three Oxford University researchers queried the figures after comparing them to hospital admissions from road accidents. The DfT statistics, from the police and including all hospital admissions, showed a fall from 85.9 people killed or seriously injured per 100,000 in 1996 to 59.4 per 100,000 in 2004. However, hospital admissions were almost unchanged at 90 per 100,000 in 1996 and 91.1 in 2004. They said the disparity was probably due to under-reporting and/or fewer minor injuries.

Statistical “utopia”

Paul Smith, from Safe Speed, said: “For every 100 accidents reported, there's 180 that aren't reported.” Cars are safer, paramedics better trained, there are more air ambulances and roads have improved, said Mr Smith. The only factor that has not changed is drivers who “are getting worse” in his opinion. He urged the department to focus on educating drivers about their responsibilities, rather than just getting them to drive slower.

But Mr Howard, from the AA Motoring Trust, is encouraged by the statistics: “My view, and I would say this is true of most of those involved in road safety, is that the statistics do show the roads are getting safer.”

- 1 By what factor is the reported annual number of deaths per vehicle on the road higher or lower at the time of the above report than it was in 1930?
- A 0.04 times as much
 - B 0.4 times as much
 - C 1.2 times as much
 - D 2.2 times as much
 - E 25 times as much
- 2 There is disagreement in the article about whether roads are becoming more or less safe. In addition to the reasons given in the text, which one of the following, if true, would strengthen the case for roads becoming safer?
- A The police do not record accidents where no injuries are sustained.
 - B Cars have become stronger, reducing the chances of injury in an accident.
 - C The proportion of accidents reported has fallen.
 - D Hospital reporting of road accidents has become more accurate.
 - E Hospitals have become better at saving the lives of severe trauma victims.
- 3 The second section refers to a DfT 10 year target. To the nearest 1000, what is the DfT's target?
- A 102,000
 - B 108,000
 - C 128,000
 - D 161,000
 - E 192,000
- 4 Which one of the following could explain the discrepancy between the DfT statistics and hospital admissions for deaths and serious injuries on the road?
- A The DfT collection method must underestimate the number of deaths and serious injuries.
 - B The roads are not getting safer.
 - C Fewer people are being admitted to hospital for minor injuries.
 - D There has been a decrease in less serious injuries.
 - E The police include accident injuries which do not involve hospitalisation.

Data Analysis & Inference answers

1 A is the answer. 1,930: 7,000/2.3 million: now 3,180/27 million: ratio is $0.00012/0.0030 = 0.04$ times or $1/25$.

B Uses 2.7 million instead of 27 million: 0.4 times.

C Uses figure in next paragraph for current (deaths + serious) 268,900/27 million which is 0.001; so the ratio is $0.0012/0.001$ or 1.2 times.

D 7,000/3,180 just ratio of deaths: 2.2 times.

E Reverse of correct answer: 25 times.

2 D is the answer. If hospitals used to under-report road accidents, they may actually have decreased.

A This would have no effect as such accidents are not reported by hospitals either.

B This would not explain the discrepancy in the statistics and, in any case, would bias the figures in the wrong direction.

C This is the wrong way round – if fewer accidents were reported, there would actually be more, so the roads would be less safe.

E This does not work for the same reasons as **B**.

3 C is the answer. The 1994–1998 number was 319,928. The target is to reduce this to 40% or to 128,000.

A Reduces by 33% (takes wrong figure) to get 102,000.

B Reduces the latest reported figure to 40%: $0.4 \times 268,900 = 108,000$.

D Reduces the latest figure by 40%: $0.6 \times 268,900 = 161,000$.

E Reduces by 40% (i.e. to 60%): 192,000.

4 The passage states that “the disparity was probably due to under-reporting and/or fewer minor injuries”. So the DfT collection method must underestimate the number of deaths and accidents. The answer is **A**.

B This is the source of the conflict – that data disagree on this so it is not implied.

C The police should count these as well, so it does not explain the discrepancy.

D If these were counted originally by the police, it would explain the decline, but the hospital admissions are higher than the police figure for both time periods.

E Once again, this would make the police figures higher.

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