



Fairness

Wider participation

UKCAT 2016

Question Tutorial for Decision Making

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In this session...

- Strategies for approaching questions from the Decision Making subtest of the UKCAT.
- Worked through example questions with answer rationales.
- General tips and advice.
- Strategies and tips for ALL OTHER subtests are covered by the new interactive [Question Tutorial](#) on the UKCAT website.





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Decision Making

- This is a new subtest being piloted in 2016 and replaces the previous Decision Analysis subtest.
- It assesses your ability to apply logic to reach a decision or conclusion, evaluate arguments and analyse statistical information.
- There are a number of different item types in this test.
- You have 31 minutes to answer 29 items associated with text, charts, tables, graphs or diagrams.
- You will not receive a score for this subtest. Your results for this section will not be communicated to your chosen medical/dental schools and will not be taken into consideration by universities during their admission processes.



What is Decision Making Testing?

○ Deductive reasoning

The ability to reason is central to the ability to solve problems and involves the application of logic to arrive at a decision or conclusion.

○ Evaluating arguments

The ability to weigh arguments for and against a particular solution is important in dealing with situations of uncertainty when there is not an unambiguous solution. In certain instances, it may require decision makers to suspend their own belief biases.

○ Statistical and figural reasoning

Clinicians are often required to apply reasoning and logical thinking in analysing statistics or information in visual or figural formats. The statistical tasks do not require advanced statistical knowledge, but are based upon practical, everyday reasoning using statistical data.



Decision Making - general strategies

- Timing is important in this subtest. Flag questions you are unsure about and come back to them at the end.
- It may help if you write out or draw the information given in the question. Make sure you have your booklet and pen to hand.
- Some questions require you to 'drag and drop' the correct response. Practice this functionality in the Tour Tutorial.
- Brush up on your maths skills around probability and Venn diagrams.

Item Type 1: Logical Puzzles

- You are required to take one or more steps of deductive inference from the information presented in order to arrive at a conclusion.
- There is only one correct response per question. Information may be given in the form of text, tables or other graphic.



Logical Puzzles – strategies

- Try to figure out the correct placement of facts before answering. Begin with the positions of known facts; the other positions will be easier to pinpoint using this as a reference.
- It may help you to write or draw this information. Setting the information out in a grid format may help.
- Try to eliminate answers that cannot be true.
- Look out for words such as ‘MUST’ and ‘MIGHT’.
- It may be necessary to complete the puzzle. Only do the working out you need. Don't waste time doing more than is needed.



Example Logical Puzzle



Four children were scared of different creatures encountered on a biology field trip. Vikram, Saskia, Jake and Hilary were each scared of a different creature; slugs, mice, frogs and spiders and each child had a different reaction. One child hid, one refused to get off the coach, one child screamed and one cried.

Vikram screamed.

Saskia is scared of mice and Jake is scared of slugs.

The person who hid is not scared of spiders.

The person who refused to get off the coach is scared of frogs.

Which of the following **MUST** be true?

- A: Hilary hid
- B: Jake cried
- C: Vikram is scared of spiders.
- D: Saskia refused to leave the coach

Example Logical Puzzle Answer and Rationale

The correct answer is C.

Text in **bold** is the information we are given. We do not know some information but this does not prevent us from being able to answer the question.

Vikram	Spiders (Vikram must be scared of spiders)	Screamed
Saskia	Mice	?
Jake	Slugs	?
Hilary	Frogs (Hilary must be scared of frogs as we know Vikram screamed and we know the other two children's fears)	Refused to get off coach

Which of the following **MUST** be true?

- A: Hilary hid
- B: Jake cried
- C: Vikram is scared of spiders.
- D: Saskia refused to leave the coach

Item Type 2: Syllogisms

- In these items you will be required to evaluate whether each of a series of conclusions arises from a given set of premises.
- Some questions may have multiple correct response options.
- You need to 'drag and drop' the correct responses.



Syllogisms - strategies

- Read over the information carefully and more than once.
- Think about each conclusion in turn and decide whether it follows based on the available information.
- Try to avoid making assumptions or drawing invalid conclusions.
- Sometimes these questions use words that are made up. This will not stop you from answering the question but don't be put off by it.
- Consider only the information presented in the question and pay special attention to qualifying words such as 'all', 'some', 'none' and 'only'.
- Venn diagrams may help when answering these questions.

Example Syllogism Question



Children are either boys or girls. Some of Mrs Baker's children are girls, and all the rest of the children are asleep.

Place 'Yes' if the conclusion does follow. Place 'No' if the conclusion does not follow.

All of the boys are asleep.

None of the girls are asleep

Some of the girls are awake.

Some of the sleeping children are boys.

None of the sleeping children are girls.

Yes
No

Example Syllogism Answer and Rationale

- A. **Yes** - we are told “all the rest are asleep”.
- B. **No** - we do not know whether the girls are asleep or awake.
- C. **No** - we do not know whether the girls are asleep or awake.
- D. **Yes** - all of the boys are asleep, and there is at least one.
- E. **No** - we do not know whether the girls are asleep or awake.

Item Type 3: Interpreting Information

- You will be presented with information in various formats (written passages, graphs, charts, etc.) and will be required to interpret this information in order to determine which conclusions follow.
- There may be multiple correct response options per item.



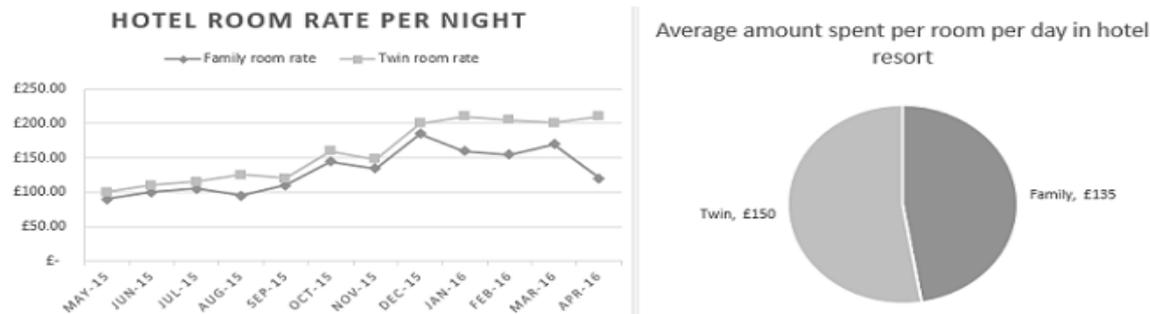
Interpreting Information - strategies

- Some graphs and charts may appear to contain a great deal of information. Focus on what you can interpret from what is presented.
- If you cannot understand everything about what is being presented, focus on the statements that have been given and try to determine what the information is telling you.
- The information presented may require you to use reasoning skills to work out the answers rather than prior knowledge of the information presented.
- Rounding off numbers may help to answer a question quickly.
- Don't judge the strength of the conclusion based on its plausibility. Instead, focus on whether the information presented in the question supports the conclusions stated.

Example Interpreting Information Question



The charts show the costs of hotel rooms and the average amount spent in hotel resorts for families and couples during a one-year period.



Place 'Yes' if the conclusion does follow. Place 'No' if the conclusion does not follow.

Including hotel rooms families spend more on their holidays than those in twin rooms.

Family rooms and twin rooms do not share the same peak hotel room rate.

More people stayed in twin rooms than in family rooms in April than in November.

The average amount spent per day in the hotel resort in May is the same as in April.

On average the hotel makes more money per twin room than per family room.

Yes

No

Example Interpreting Information Answer and Rationale

- A. **No** - we don't have information about the total amount that families spend on their holidays.
- B. **Yes** - the peak rate for family rooms is £170, for twin rooms it is £210.
- C. **No** - we only know about the cost of the rooms, there is no information about occupancy.
- D. **No** - we only know the average over a one-year period and have no information on how this fluctuated throughout the year.
- E. **Yes** - the chart show that the fee per room is always higher for twin rooms than for family rooms.

Item type 4: Recognising Assumptions

- These items ask you to evaluate arguments for and against a particular solution to a problem.
- You will be required to evaluate the strength of the presented arguments and the soundness of assumptions underlying these arguments.
- There is only one correct response per question; candidates must suspend their own beliefs to reach the strongest conclusion.



Recognising Assumptions - strategies

- Remember to select the *strongest* argument.
- Don't base your answer on your own beliefs or existing knowledge as this may not be relevant.
- Strong arguments are directly connected to the subject matter; weak arguments are either not connected to the subject matter or connected indirectly. Weak arguments rely on assumption or opinion.
- Eliminate statements that are assumptions rather than statements of fact.

Example Recognising Assumptions Question



Should drinks companies be banned from selling water in plastic bottles?

Select the strongest argument from the statements below.

- A: Yes, less than 300,000 of the three million plastic bottles thrown away each day are recycled
- B: Yes, all plastic water bottles that are not recycled are incinerated, releasing harmful gases into the atmosphere.
- C: No, if plastic water bottles were banned people would drink less water which would be a serious health risk.
- D: No, bottled water is cleaner than tap water which is particularly important for those in developing countries.

Example Recognising Assumptions

Answer and Rationale

The correct answer is A.

- A is the strongest argument – less than 10% of plastic bottles that are purchased are recycled, indicating that banning selling water in plastic bottles would reduce the environmental impact.

- While all the options given are relatively credible:
 - B does not tell us how many were recycled or incinerated (we cannot identify whether harmful gases would have an impact or not) and makes an assumption that all non-recycled plastic bottles will be incinerated. It goes some way to making an argument but not all the way.
 - C is an assumption lacking evidence.
 - D is also an assumption; we do not know how much of the bottled water sold in developing countries is actually tap water/unfiltered water repackaged.

Item Type 5: Venn Diagrams

- You may be presented with a Venn diagram and asked to select the single best conclusion from a list of statements.
- In other items you will have a passage of information which you can interpret either in the form of a Venn diagram or by providing conclusions.
- You may also be provided with a set of statements and a set of different Venn diagrams as response options. You will need to select the Venn that best represents the information provided.



Venn diagrams - strategies

- If you are not familiar with this area of maths, refresh your learning on this topic.
- Read over the information carefully and more than once. It may help for some of these questions to draw your own Venn diagram and compare it to the answers.
- Go through each response given and eliminate those that cannot represent the information provided.
- Try to do only as much working out as you need. You may be able to get to the answer using some but not all of the information provided.



Example Venn diagrams



A food processing plant uses three base ingredients; wheat, rice and maize in the production of its 22 products.

15 products contain wheat, 6 of those products use a wheat base only.

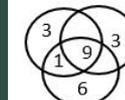
9 use all three base ingredients.

1 product uses 2 base ingredients.

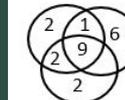
The same number of products use rice only as use maize only.

Which diagram best represents the information?

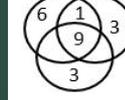
A:



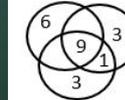
B:



C:



D:



Example Venn Diagram Answer and Rationale

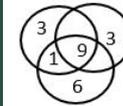
The correct answer is D.

Based on the information given:

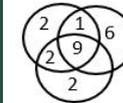
- ⦿ All images have 9 products made from all three. All images show 6 products with 1 base product which must be wheat.
- ⦿ A, C and D show 1 product using 2 base ingredients. So cannot be B.
- ⦿ A and C show that 1 product being shared with what must be wheat. Given the information that there are only 15 products that use wheat in them A and C cannot be correct.

Which diagram best represents the information?

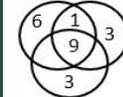
A:



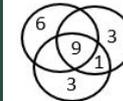
B:



C:



D:



Item Type 6: Probabilistic Reasoning

- You will be presented with a very short passage containing statistical information.
- You will be asked to select the best response to the question.

Probabilistic Reasoning - strategies

- If you have not recently studied probability, remind yourself how to do these calculations.
- Read the question and answer options carefully.
- Read all response options before marking your final answer.
- Try to eliminate incorrect statements to narrow down your choice.

Example Probabilistic Reasoning



Simon plays two games of tennis against his friend Vera.

For each game the probability of Simon winning is 0.3. The games are independent. Simon thinks he is more likely to win at least one game than not.

Is he right?

- A: Yes, because there is an equal likelihood of him winning any game so the probability is 0.6.
- B: Yes, because the probability of him winning one game or more is 0.51.
- C: No, because the probability of him losing any game is 0.6.
- D: No, because the probability of winning one and losing the other is 0.21, for two games it is 0.41.

Example Probabilistic Reasoning Answer and Rationale

The correct answer is B.

A. This is what you get if you double the probability of Simon winning a single game.

B. Probability of winning one game or more is the probability of winning both games ($0.3 \times 0.3 = 0.09$) plus probability of winning the first OR the second game ($2 \times (0.3 \times 0.7) = 0.42$); $0.09 + 0.42 = 0.51$

C. The probability of him losing any game is 0.6 but he gets two chances to win.

D. This is correct but doesn't include the probability of winning both games.



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Candidate Preparation Toolkit

- Freely available from the UKCAT website
- Includes 3 fully timed [Practice Tests](#) and a [Question Bank](#) of additional items from each subtest
- UKCAT [Official Guide](#) containing over 130 practice items
- Free UKCAT [Practice App](#) for iPhone / Android
- Our official [UKCAT YouTube Channel](#) has a number of videos to support your preparation.
- There are many companies offering UKCAT preparation material; be careful as they may not necessarily be of a high standard and may not be up to date enough to mirror the actual test.





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