Psychometric problems

The decision analysis test

To test that you have the skills to make good decisions some employers use the decision analysis test (DAT). The object of this is to test how well you make judgements. You are given information in a written, graphic or tabular form. Then you are expected to analyse key concepts in the information and find patterns in it, from which you make your own judgement and decide on the best answer from a list of possible answers.

In this way it is possible to assess your ability to make judgements in situations of uncertainty, when the information you have is complex and incomplete or ambiguous, rather than simply apply rules that you have learnt. In addition, some tests, like the UKCAT (UK Clinical Aptitude Test), ask you to complete an exercise in metacognition by indicating the level of confidence that you have in your decisions.

In addition to commercial organisations, there are a growing number of non-profit organisations that use these. The Civil Service uses them, the MOD, the British Army (British Army Recruitment Battery test), the RAF, and the BMA (for example, the Health Professionals Aptitude Test). Universities, too, have taken to using them. A number are employing tests, like the Law National Admissions Test (LNAT) and UK Clinical Aptitude Test (UKCAT).

DATs are designed to assess the following abilities:

* To find concepts in complex information.
* To analyse concepts and information.
* To synthesise information, combining it to make new connections and inferences.
* To find patterns in the information.
* To use these patterns to find the right answer.
* To make your own value judgements.

Business Decision Analysis Test

For example, in the Business Decision Analysis Test candidates are required to identify and learn the rules and concepts underpinning business decisions and then apply them to new situations. You are provided with 12 pieces of information, which consist of written and numerical information presented in graphs and tables.

One example, provided by the test distributor, involves answering four questions set within a business planning consultancy, operating in the confectionary industry. You are given information on the ingredients of various chocolate bars from different brands, along with market information about the target audience of each product. It is expected that this information will equip candidates with a pattern of knowledge about the products and their markets that can then be used later when new chocolate bars are produced.

Another example comprises 12 information sheets on which are based 48 questions that have to be completed in 40 minutes. In one test you are given information about the sale of a product, including its target audience and other factors, along with descriptions of the success of different strategies used to sell this product, such as ‘successful’, ‘medium’, ‘low’ and ‘disaster’. Afterwards you are presented with a new product and asked to forecast the results based on your assessment of the sales strategy employed in the previous example.

UKCAT (UK Clinical Aptitude Test)

The UK Clinical Aptitude Test uses deciphering problems to test the same range of skills. In effect, this is an exercise in code-breaking, with information contained in text, tables and other forms. The code tables are divided between ‘Operators’ or ‘General rules’ and ‘Specific information’ or ‘Basic codes’. You are then set a number of questions, each one having four or five possible answers from which to choose.

The tapestry code

While cleaning a 14th century tapestry at the British Museum a previously undetected code is found woven into the fabric. This consists of a series of letters and numbers grouped together in sequences as coded messages. Your job is to decipher the codes. On the basis of the information that you are given make a judgement as to what you think it means.[[1]](#endnote-1)1 The first question, based on the following information, can be found on page 235 of *Smart Thinking*.

**Operators/general rules Specific information/Basic codes**

A = multiple 1 = I

B = opposite 2 = you

C = down 3 = man

D = group 4 = horse

E = danger 5 = sword

F = noble 6 = tree

G = into 7 = brave

H = special 8 = move

 9 = take

 10 = fight

 11 = creature

 12 = castle

 13 = goblet

 14 = search

Question 1:

**What is the best interpretation of the coded message: F(7,3), E8, 5, B(G6)**

A. The brave duke pulled the dangerous sword out of the tree.

B. The brave duke risked pushing the sword into the tree.

C. The duke bravely moved away from the treacherous tree with sword in

 hand.

D. The knight pulled the sword out of the tree.

E. The knight risked pulling the sword out of the tree.

Answer:

(A)

Literal translation: Noble (brave, man), danger move, sword, opposite (into tree)

Translating the first element reveals that we are looking for a ‘brave nobleman’, which indicates that we can eliminate (D) and (E), because neither mentions the element of bravery, whereas (A), (B) and (C) all mention it in some form. The next element, E8 translates as ‘danger move’, which means we can eliminate (C), which makes no reference to danger. The final two elements are 5 ‘sword’ and B(G6) ‘opposite (into tree)’. Both (A) and (B) mention a sword, but ‘opposite (into tree)’ means we must be looking for a statement that involves pulling a sword out of a tree. This means that we can eliminate (B), which involves pushing it into the tree, leaving (A), which involves pulling it out of the tree, as the correct choice.

Question 2:

**What would be the best way to encode the following message: Many armies of knights came to the castle seeking the Holy Grail.**

A. AF(7, 3), 8, G12, 14, H13

B. AF(7, 3), 8, D4, G12, 14, H13

C. ADF(7, 3), 8, G12, 14, H13

D. ADF(7, 3), 8, G12, 9(14, H13)

E. ADF(7, 3), 8, D4, G12, 14, H13

Answer:

(C)

The message mentions ‘many armies of knights’, which translates as ADF. A and B only mention ‘many noblemen’; they omit the D indicating ‘armies’. The remaining three all translate ‘came to the castle’ as 8, G12, but (E) has, in addition, D4, which translates as a ‘group of horses’, which is not mentioned in the message. The final two statements, C and D, both have ‘seeking the Holy Grail’ as 14, H13, but D precedes this with 9, which translates as ‘take’, but there is no mention in the message that the knights plan to take the Holy Grail. So the answer must be C.

Question 3:

**What is the best interpretation of the coded message: B(7, 3), 8, 10, (7, 3), 14, B10**

A. On his quest for peace, a fearful man sometimes moves against a brave one

 in battle.

B. A coward fights on, while a fearless man seeks peace.

C. A man who is not a knight went and fought one who was on a search to

 end the war.

D. A serf must go fight a knight in the name of peace.

E. Peace is found when serfs and knights refuse to fight.

Answer:

(B)

Literal translation: Opposite (brave, man), move, fight, (brave, man), search, opposite fight.

Three of these statements translate 7, 3 as ‘knight’ and its opposite as ‘serf’, but if the message had meant ‘knight’ it would have been translated as F ‘noble’. The code 7, 3 does not specify the class of the man who is brave, so the best interpretation cannot be C, D or E. As for the remaining two statements, A translates ‘opposite (brave, man)’ as ‘On his quest for peace’, which would more likely have been the opposite to 10, 3. The opposite of a ‘brave man’ is a ‘coward’, so the answer must be B.

Question 4:

**Which of the following would be the most useful and second most useful additions to the codes to convey the message accurately?**

Message: The perilous woodland creatures alarmed my horse with their vulgar sounds.

A. Peril

B. Woodland

C. Disturb

D. Vulgar

E. Noise

Answer:

Most useful: (E) Noise

Second most useful: (B) Woodland

The word ‘perilous’ is already catered for by using the word ‘danger’, so A cannot be a useful addition. However, the word ‘woodland’ (B) could be a useful addition. In terms of the present list we could use the word ‘tree’ creatures, but, of course, there are more creatures in woodland than those that inhabit trees. The word ‘alarmed’ would be more accurately interpreted with the addition of the word ‘disturb’ (C), but it can at present be translated by using ‘opposite (brave)’, so it may not be the most useful addition. The last two words ‘vulgar’ and ‘noise’ (D) and (E) address the last two words of the message ‘vulgar sounds’. The adjective ‘vulgar’ (D) adds no significant meaning to the message and could be deleted, but there is no word in the lists or its opposite that could serve to convey the word ‘noise’ (E). So (B) and (E) are the two useful additions to the codes. As ‘woodland creatures’ can be partially covered by the codes 6 and 11, (E) ‘noise’ would appear to be the most useful and (B) ‘woodland’ the second most useful.

UKCAT Decision Analysis Practice Questions

In this practice exercise you are given the following information on operators and basic codes from which you must decode the messages that follow. To avoid confusion, note that there are two ‘takes’ in the basic codes. There is no obvious reason for this, but it doesn’t affect how we tackle the questions. And I have changed the word ‘pleural’ to read ‘plural’, which I’m sure is what was intended.[[2]](#endnote-2)2

**Operators** **Basic codes**

A = Negative 1 = take 11 = cold 21 = air

B = Personal 2 = clothes 12 = in 22 = time

C = Extent 3 = tool 13 = head 23 = he

D = Plural 4 = lock 14 = triangle 24 = up

E = Individual 5 = off 15 = shock 25 = study

F = Increase 6 = past 16 = enjoy

G = Assist 7 = travel 17 = small

H = Future 8 = place 18 = look

I = Relationship 9 = vehicle 19 = hand

 10 = take 20 = close

As in the questions above, you are given the message, followed by five alternatives from which you must choose the correct answer.

Question 5:

(A,1), B, 9(A4)

A. Give me the car keys

B. Give me my car keys

C. Take the car keys

D. I was given the car keys

E. The car keys were mine

Answer:

(A)

B is not correct as there is no reference to the keys belonging to anyone in the code.

C is not correct as there is no reference to take, other than with the negative

 connotation indicating the opposite and therefore ‘give’.

D is not correct because there is no reference in the code to the past tense i.e. given.

E is not correct as it misses the code for ‘give’ and also states that the keys

 belonged to someone which was not stated in the code.

Question 6:

B, A7, DE

A. I will be unable to go to the party

B. The party was full of people

C. I was unable to go to the party

D. I am unable to go to the party

E. I am having a party

Answer:

(D)

A is not correct as this I will makes a reference to the future tense which is not

 present in the code.

B is not correct as it misses references to ‘I am unable’ and ‘going’.

C is not correct as the ‘I was’ infers a past tense which is not in the code.

E is not correct because it misses references to being unable to travel to the party.

Question 7:

1, (AB), (13,2), 8, (A11)

A. This room is very hot, take off your scarf

B. If you take off your hat, you will get cold

C. You took off your hat and now it is cold

D. Take your hat off it is hot in this room

E. Your hat has made you warm in this cold place

Answer:

(D)

A is not correct has there is no reference in the code for ‘scarf’.

B is not correct as there is no reference in the code for ‘cold’.

C is not correct as there is no reference in the code for ‘cold’.

E is not correct as it infers a past tense with ‘has made’ which is not present in the code; ‘cold’ is not present in the code.

Question 8:

B16, (14A17)

A. I like these shapes

B. I like the pyramids

C. I liked the pyramids

D. I went to the pyramids

E. I like making pyramid shapes

Answer:

(B)

A is not correct as there are answers that fit ‘triangles’ better than ‘shapes’.

C is not correct as it infers a past tense not present in the code with ‘I liked’.

D is not correct as it infers a past tense with ‘I went’.

E is not correct as there is no reference to ‘making’ in the code.

Question 9:

AB, (19,2), F17

A. Those gloves are very small

B. My gloves are very big

C. Your gloves are very small

D. My gloves are small

E. The gloves are small

Answer:

(C)

A is not correct as the reference to ‘your’ has been missed.

B is not correct as there is no reference to ‘my’ in the code and the code references

 ‘small’ not ‘big’.

D is not correct has there is no reference to ‘my’ in the code.

E is not correct as ‘your’ has been missed.

Question 10:

BG, 18, F20, (3, 8)

A. I need help finding the DIY store

B. Help me find the tool shop

C. I was helped to find the nearest tool shop

D. Help me get to a nearby DIY store

E. Help me find the nearest DIY shop

Answer:

(E)

A is not correct as it missed the reference to ‘nearest’.

B is not correct as it missed the reference to ‘nearest’.

C is not correct as it introduces the past tense with ‘I was’ which is not in the code.

D is not correct has it mentions ‘help me get to’ implying travel, for which there is

 no reference in the code.

Question 11:

A(6, H) B,F, D(EI)

A. Today I made many friends

B. Today I made a friend

C. I made a friend yesterday

D. I have lots of friends from long ago

E. In the past I made many friends

Answer:

(A)

B misses the reference to ‘many friends’.

C misses plural ‘friends’ and introduces past tense not mentioned in the code with

 ‘yesterday’.

D and E both introduce the past tense with ‘long ago’ and ‘in the past’ respectively,

 which do not form part of the code.

Question 12:

BG, 7, B9, 12

A. Help me move some things into my car

B. Help me move into my car

C. Help me into my car

D. I was helped to move into my car

E. Move some things into my car

Answer:

(B)

A mentions ‘things’ which is not referenced in the code.

C misses ‘move’ mentioned in the code.

D introduces a past tense with ‘I was’ not seen in the code.

E misses ‘assist’ which can be translated as help.

Question 13:

B15F, AB, 7, B18

A. I am glad you came to see me

B. Are you coming to see me?

C. I was surprised you came to see me yesterday

D. Tomorrow I will come to see you

E. I am very surprised you are coming to see me

Answer:

(E)

A introduces the past tense with ‘came’ and also ‘glad’ which aren't in the code,

 misses ‘shock’.

B misses ‘shock’ which is in the code.

C introduces the past tense with ‘yesterday’ not present in the code.

D introduces the future tense with ‘tomorrow’ not seen in the code.

Question 14:

(B15), C, (11,21)

A. The cold air surprised me

B. I am surprised at just how cold the air is

C. The cold air surprises me

D. I am shocked by the heat in the air

E. I am surprised at how cold it is tonight

Answer:

(B)

A misses ‘extent’ which is mentioned in the code and introduced a past tense with

 ‘surprised’ not present in the code.

C misses ‘extent’ which is mentioned in the code.

D misses ‘cold’ and instead uses heat.

E introduces ‘tonight’ which is not present in the code.

Question 15:

A1, B, FC, 22

A. Time is ticking

B. Give me a help this time

C. Give me more time

D. Give me more time tomorrow

E. Give me less time

Answer:

(C)

A misses ‘more’ and ‘give me’ referenced by the code.

B introduces ‘help’ not present in the code.

D introduces the future tense with ‘tomorrow’ not in the code.

E misses ‘more’ and instead uses ‘less’.

1. 1 This has been adapted from the 2011 UKCAT Sample Questions. [↑](#endnote-ref-1)
2. 2 You can see all 26 questions in the practice test at the website <http://www.getintomedicine.co.uk>. In the actual test you are given 28 minutes to complete the 28 questions. [↑](#endnote-ref-2)