

UCAT

Decision Making Session 2



Class Questions

Question 1) Friday 13th

Every Friday 13th, Veronica announces what day of the week the last day of the month will be.

One month she made a mistake. Which of the following is the mistake that she made?

“Today, Friday 13th, I can guarantee that ...

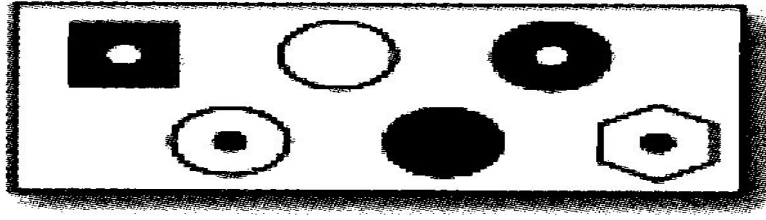
- A.** ... the last day of the month will be a Friday.”
- B.** ... the last day of the month will be a Saturday.”
- C.** ... the last day of the month will be a Sunday.”
- D.** ... the last day of the month will be a Monday.”



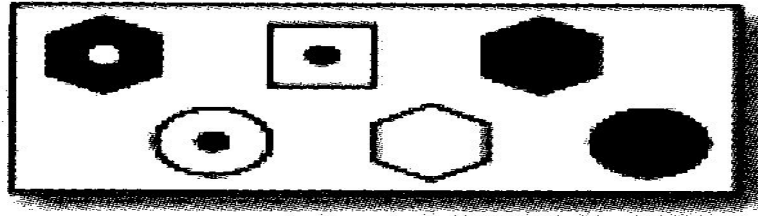
Class Questions

Question 2) Labels

In the diagrams below, all shapes are labelled either A, B or C.



In this box, there are more Bs than As



In this box there are 2 As, 2 Bs and 2 Cs

- All shapes labelled A are round.
- All shapes labelled C contain a dot.

What label is associated to the black square with a dot?

- A. A
- B. B
- C. C
- D. It can be B or C

Class Questions

Question 3) Order

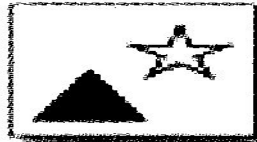
Consider the following pieces labelled A to F.



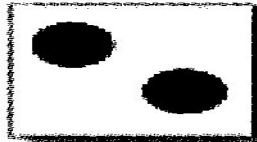
A



B



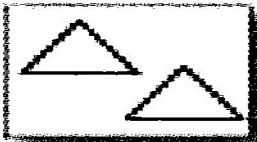
C



D



E



F

You have been asked to lay the pieces out in a line in an order that satisfies the following requirements:

- No. 2 has at least one square
- No. 3 has at least one triangle
- No. 6 has one star
- No. 1 has two circles
- No. 4 has two black objects
- No. 5 has two white objects
- No. 3 has at least one black shape

What is Piece F's position?

- A.** 3
- B.** 4
- C.** 5
- D.** 6

Class Questions

Question 4) Tokens

Five tokens of different colours (blue, green, yellow, red and white) are aligned. The blue token is on the right of the yellow token. The blue token is on the left of the white token and on the right of the green token. There are two tokens between the white and the red.

Which of the following statements is true?

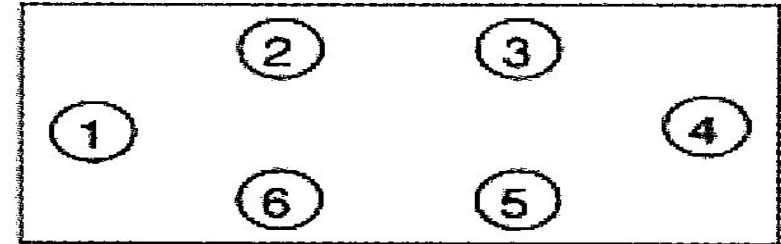
- A.** The yellow token is at one extremity.
- B.** The blue token is at one extremity.
- C.** The white token is not at an extremity.
- D.** The left-hand token is either yellow or green.

Class Questions

Question 5) Rectangular Table

Mary, Damian, Patrick, Louisa, Karl and Rob are sitting around a rectangular table.

- Damian is sitting opposite Louisa.
- Karl is not sitting next to Damian.
- Patrick is sitting on Louisa's right.
- The two women are not sitting side by side.
- Mary is occupying Seat 1.



Which of the following statements must be true?

- A.** Damian is sitting in Seat 2 or Seat 6.
- B.** Karl is not sitting opposite Rob.
- C.** Karl sits in Seat 6.
- D.** Patrick is sitting next to Rob.

Class Questions

Question 6) Who lives where?

Martin, George, Phil and Steve each live in a different city: London, Pontefract, Manchester and Birmingham.

If Phil lives in London or Pontefract, then George lives in Manchester.

If Martin does not live in London, then Steve lives in Pontefract.

If Steve does not live in Birmingham, then Phil lives in Birmingham.

If George lives in Pontefract, then Phil lives in London.

If Martin does not live in Birmingham, then George does not live in Manchester.

Which of the following MUST be true?

- A. Martin lives in Birmingham.**
- B. George does not live in Pontefract.**
- C. Phil lives in Pontefract.**
- D. George lives in Manchester.**

Class Questions

Question 7) Coding

Consider the following numbers:

12478 – 34852 – 75261 – 57123 – 86514

Those same numbers are encoded such that each digit is replaced by another digit in a unique way. Here are the same numbers after they have been encoded, presented in a random order:

68479 – 86734 – 53642 – 92567 – 47285

Which number, when coded, would give 75324?

- A. 28614
- B. 28641
- C. 79862
- D. 86972



Class Questions

Question 8) Guilty or Not Guilty

After a recent robbery, it has been established that one or more of four suspects are guilty.

- If Fred is guilty then they are all guilty.
- If Theo is guilty then he has two accomplices.
- If Eddie is innocent, then Theo isn't.
- If Victor is guilty then there are only two guilty suspects.

Which of the following must be true?

- A. Eddie is guilty.**
- B. Eddie alone is guilty.**
- C. Victor is guilty.**
- D. Eddie or Victor is guilty but not both.**

Class Questions

Question 9) Supporting Colours

Four friends, Sushama, Keith, Grace and Vijay, live in Binbury and each support a different football team, either: Newtown United, Weston City, Binbury City or Binbury United. United teams have a single coloured scarf; other teams' scarves are multi-coloured.

- Keith supports a United team.
- Grace wears a multi-coloured scarf.
- Vijay and Sushama do not support a home team.

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

- a.** If Keith's team plays Grace's team both sides will have multi-coloured scarves.
- b.** If Keith's team plays Vijay's team both sides will have single coloured scarves.
- c.** Keith does not support Newtown United.
- d.** Sushama supports Weston City.

Class Questions

Question 10) Youth Travels

Last summer, Ann, Ben and Carole each visited a different country. Each tells the truth twice and lies once.

Ann: I visited England, Carole visited Italy, Ben visited Germany

Ben: I visited Germany, Carole visited Italy, Ann visited England

Carole: I visited England, Ann visited Austria, Ben visited Germany

Which country did Ann visit?

- A. Austria**
- B. England**
- C. Germany**
- D. Italy**

Class Questions

Question 11) Coded Language

In a certain code language:

- “Economics is not money” is written as “ka la ho ga”
- “Demand and supply economics” is written as “mo ta pa ka”
- “Money makes only part” is written as “zi la ne ki”
- “Demand makes supply economics” is written as “zi mo ka ta”.

What is the code for “supply” in the given code language?

- A.** Only “ta”
- B.** Only “mo”
- C.** Either “pa” or “mo”
- D.** Either “ta” or “mo”



Class Questions

Question 12) Glassware

A restaurant is planning to host a dinner for 100 people. They have been warned by the client that diners should be given a maximum of two glasses of wine each. This maximum applies to each diner and diners are not allowed to use the unused allowance of one of the other diners (i.e. if someone does not drink then no one can drink their glass instead as their third glass).

The client sent an email to the restaurant to say that $X\%$ of the diners will require only one glass of wine and that half of the remaining diners will require two glasses. Some will not require any since they won't be drinking.

Unfortunately the client has forgotten to state what X is and he cannot be reached before the day of the dinner, when it will be too late to change anything. Only one type of wine is served throughout the evening and one bottle of wine can serve 6 glasses.

Based on the data provided, which of the following must be true?

- A.** The restaurant owner will need to buy 34 bottles in order to satisfy the client's demands.
- B.** When all guests have been served, one bottle will be left open. That bottle will be $\frac{1}{3}$ full.
- C.** The number of glasses that will be served can be as low as 0 and as high as 200.
- D.** The probability that the restaurant owner will order the correct quantity of wine is below 1%.



Class Questions

Question 13) False Positive

A laboratory can use Test A to determine whether a particular protein is contained in a blood sample. The probability that an individual's blood contains the protein in question is 0.1%. Test A has the following characteristics:

- If the protein is in the blood, Test A always detects it.
- When Test A gives a negative result, it is 100% accurate, i.e. it means the person does not have the protein in their blood.
- When 100 people with no protein in their blood were tested, for 5 of them the test showed a positive result.

The laboratory predicts that the probability that an individual who tests positive actually has the protein is very low (of the order of 2%). Which of the following applies?

- A.** No, it should be 95% since the test only gets it wrong in 5% of cases.
- B.** No, the probability should be far higher since the test has a low failure rate. But it is not 95%.
- C.** Yes, this is because the low prevalence of the protein presence makes the test very unreliable.
- D.** The lab cannot calculate a percentage using the data provided.

Answerkey

Question Name	Question Number	Answers
Friday 13th	1	A
Labels	2	D
Order	3	C
Tokens	4	D
Rectangular Table	5	C
Who lives Where?	6	B
Coding	7	B
Guilty or Not Guilty	8	A
Supporting Colours	9	C
Youth Travels	10	A
Coded Language	11	D
Glassware	12	B
False Positive	13	C



Home Assignments

Book	Questions
UCAT 1250	52, 54, 56, 81, 82, 84, 85, 86, 87, 88, 89,93





Thank you