

# **UCAT Sample Questions**

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# UCAT Sample Questions (/resources/ucat/sample-questions)

ANSWERS AND SOLUTIONS

# Subtest 1 - Verbal Reasoning

• On this page, there are 12 verbal reasoning sample questions which you should complete within 5 minutes and 45 seconds.

#### Questions 1 - 4

The Mechanical Turk was a fake chess-playing machine, constructed and unveiled in 1770 by Wolfgang von Kempelen to impress the Empress Maria Theresa of Austria. The Turk appeared to be able to play a strong game of chess against a human opponent, as well as perform the knight's tour, a puzzle that requires the player to move a knight to occupy every square of a chessboard exactly once. Until its destruction by fire, it was exhibited by various owners as an automaton, though it was eventually revealed to be an elaborate hoax.

Following word of its debut, interest in the machine grew across Europe. Kempelen, however, was more interested in his other projects and avoided exhibiting the Turk, often lying about the machine's repair status to prospective challengers. In the decade following its debut at Schönbrunn Palace, the Turk only played one opponent, Sir Robert Murray Keith, a Scottish noble, and Kempelen went as far as dismantling the Turk entirely following the match. Kempelen was quoted as referring to the invention as a "mere bagatelle", as he was not pleased with its popularity and would rather continue work on steam engines and machines that replicated human speech.

In 1781, Kempelen was ordered by Emperor Joseph II to reconstruct the Turk and deliver it to Vienna for a state visit from Grand Duke Paul of Russia and his wife. The appearance was so successful that Grand Duke Paul suggested a tour of Europe for the Turk, a request to which Kempelen reluctantly agreed. The Turk began its European tour in 1783, beginning with an appearance in France in April. Upon arrival in Paris in May 1783, it was displayed to the public and played a variety of opponents, including a lawyer named Mr. Bernard who was a second rank in chess ability. Following the sessions at Versailles, demands increased for a match with François-André Danican Philidor, who was considered the best chess player of his time. Moving to the Café de la Régence, the machine played many of the most skilled players, often losing, until securing a match with Philidor at the Académie des Sciences. While Philidor won his match with the Turk, Philidor's son noted that his father called it "his most fatiguing game of chess ever!" The Turk's final game in Paris was against Benjamin Franklin, who was serving as ambassador to France from the United States.

Following the machine's debut, Kempelen was reluctant to display the Turk because:

(A) The machine was undergoing repair.

- (B) He had dismantled it following its match with Sir Robert Murray Keith.
- (C) He preferred to spend time on his other projects.
- (D) It had been destroyed by fire.

## Question 2

Which of the following statements cannot be inferred from the passage?

(A) The Turk began its tour of Europe in April of 1783.

- (B) During its European tour, the Turk won almost all of its matches.
- (C) Philidor found his match with the Turk challenging.
- (D) The Turk's visit to Vienna preceded its appearance in Paris.

#### **Question 3**

According to the passage, the Turk played the following individuals:

- (A) Benjamin Franklin, Grand Duke Paul, François-André Danican Philidor
- (B) François-André Danican Philidor, Kempelen, Sir Robert Murray Keith
- (C) Benjamin Franklin, Emperor Joseph II, Mr. Bernard
- (D) François-André Danican Philidor, Mr. Bernard, Benjamin Franklin

#### **Question 4**

Which of the following statements is best supported by the passage?

- (A) The Turk was unveiled at Schönbrunn Palace.
- (B) Kempelen reconstructed the Turk in 1781 for a state visit from Emperor Joseph II.
- (C) The Turk played first-rate chess players including Philidor and Mr. Bernard.
- (D) During its career, the Turk visited Austria, France, and Turkey.

#### Questions 5 - 8

There are several species of citrus trees whose fruits are called limes, including the Key lime (*Citrus aurantiifolia*), Persian lime (*Citrus latifolia*), kaffir lime (*Citrus hystrix*), and desert lime (*Citrus glauca*). Persian limes are more phototoxic than Key limes. The difficulty in identifying exactly which species of fruit are called lime in different parts of the English-speaking world is increased by the botanical complexity of the citrus genus itself, to which the majority of limes belong. Species of this genus readily interbreed, and it is only recently that genetic studies have started to throw light on the structure of the genus. The majority of cultivated lime species are in reality bred from two different "parent" species through hybridisation, produced from the citron (Citrus medica), the mandarin orange (Citrus reticulata), the pomelo (Citrus maxima) and in particular with many lime varieties, the micrantha (Citrus micrantha).

Although the precise origin is uncertain, wild limes are believed to have first grown in Indonesia or Southeast Asia, and then were transported to the Mediterranean region and North Africa around 1000 CE. To prevent scurvy during the 19th century, British sailors were issued a daily allowance of citrus, such as lemon, and later switched to lime. The use of citrus was initially a closely guarded military secret, as scurvy was a common scourge of various national navies, and the ability to remain at sea for lengthy periods without contracting the disorder was a huge benefit for the British military. British sailors thus acquired the nickname "Limey" because of their use of limes.

Raw limes are 88% water, 10% carbohydrates and less than 1% each of fat and protein. Only vitamin C content at 35% of the Daily Value (DV) per 100 g serving is significant for nutrition, with other nutrients present in low DV amounts. Lime juice contains about 47 g/L of citric acid, slightly less than the citric acid of lemon juice, nearly twice the citric acid of grapefruit juice, and about five

times the amount of citric acid found in orange juice. Phototoxicity in lime species is due to higher concentrations of furanocoumarins, and lime peel contains higher concentrations of furanocoumarins than lime pulp (by one or two orders of magnitude).

#### **Question 5**

Citrus medica, Citrus reticulata, Citrus maxima and Citrus micrantha were produced by hybridisation.

(A) True

(B) False

(C) Can't Tell

#### **Question 6**

According to the passage, limes were the primary source of citrus for British sailors in the 19th century.

(A) True

(B) False

(C) Can't Tell

#### Question 7

The citric acid content of orange juice is higher than the citric acid content of an equivalent volume of grapefruit juice.

(A) True (B) False (C) Can't Tell

## **Question 8**

Citrus latifolia contains higher concentrations of furanocoumarins than Citrus aurantiifolia.

(A) True (B) False (C) Can't Tell

#### Questions 9 - 12

There is no doubt about it: the child protection system is in crisis, and it is manifestly failing Aboriginal children and young people. Despite the hundreds of millions of dollars spent on removing children and depositing them in a revolving door of unstable placements, homelessness, substance abuse and prison, the rate of Aboriginal children being removed from their families is expected to triple by 2037.

In Victoria, Aboriginal children are 15.8 times more likely to be removed from their homes than their non-Aboriginal peers. Despite making up 1% of the population, Aboriginal children represent 20% of children in out-of-home care. Since Kevin Rudd's apology to the stolen generations in 2008, the rate of Aboriginal children being removed from their homes has doubled nationally, and tripled in Victoria, from 660 in 2008 to 2,091 in 2017.

The rate of removal of Australia's First Nations children is one of the highest in the world. In 2016 the rate of Aboriginal children in out-of-home care in Victoria was double the rate of Indigenous children in out-of-home care in Canada, and 10 times the rate of Māori children in New Zealand.

Why? It is not – and I can't believe I have to say this – it is not because we don't love our children. It's because the system is individualistic, pathologising and reactionary, and what should be the last resort is the only resort. In a majority of cases, the removal of Aboriginal children from their families and communities is a Band-Aid fix on a gushing wound, and has far-reaching and long-lasting consequences for children, families, carers and communities. Despite the myth that Aboriginal children are removed from abusive homes, more often than not this is not the case. The rates of removal for cases of physical or sexual abuse are actually higher in the general population. In 75% of cases Aboriginal children are removed from their homes because of exposure to family

violence or a parent's inability to care for them. This "inability" is often a result of parents' own mental illness or extreme disadvantage, with a Victorian review of the cases of Aboriginal children in out-of-home care finding that parental mental illness was present in 60% of cases.

## Question 9

Which of the following can be inferred from the passage?

(A) There are more Aboriginal children in out-of-home care in Victoria than there are Indigenous children in out-of-home care in Canada.

(B) Some believe that Aboriginal children are removed from their homes because they are not loved.

(C) Kevin Rudd's apology to the stolen generations led to an increase in the removal of Aboriginal children.

(D) The removal of Aboriginal children is regarded by the child protection system as a method of last resort.

#### **Question 10**

Which of the following best describes the author's tone?

(A) Contemptuous

(B) Ambivalent

(C) Direct

(D) Sarcastic

# **Question 11**

What does the author intend to suggest about the removal of Aboriginal children when she compares it to a "Band-Aid fix on a gushing wound"?

(A) It is an effective albeit temporary solution.

(B) It is an inexpensive solution.

(C) It only helps those children with physical injuries.

(D) It does not fix the underlying problem.

#### **Question 12**

Which of the following statements is **not** supported by the passage?

(A) The rate of Aboriginal children being taken away from their families will continue to increase well into the next two decades.

(B) 2091 Aboriginal children were removed from their homes in Victoria in 2017.

(C) Physical and sexual abuse are the two most common reasons for removing Aboriginal children from their homes.

(D) In some parts of Australia, Aboriginal children are grossly over-represented in out-of-home care.

# Subtest 2 - Decision Making

**O** On this page, there are 6 sample questions which you should complete within 6.5 minutes.

#### Question 1

At a conference for anaesthetists in Sydney last year, none were men who had subspecialised in chronic pain management.

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



An Olympic athlete has put her medals up on the wall for everyone to admire. She has won six medals— two gold and four silver. The medals are from two Olympics, 2000 and 2004.

The medals are arranged as shown:

- 1 2 3
- 4 5 6
- Medal 2 is gold.
- Both gold medals were won in the 2004 Olympics.
- Medals 1 and 3 were won in 2000.
- At most only three silver medals are on the corners.
- All medals won in 2000 are hung adjacent to at least two medals won in 2004.

Which of the following could be the kinds of medals that 4, 5, and 6 are, respectively?

(A) Gold, silver, gold.

(B) Silver, gold, silver.

- (C) Silver, silver, gold.
- (D) Silver, silver, silver.

#### **Question 3**

Should the Australian government be able to monitor and read all telephone conversations?

Select the strongest argument from the statements below.

- A) Yes, it is important for police to be able to prevent terrorism
- B) Yes, so that the government can help plan for infrastructure
- C) No, because it would be technically very difficult to do this
- D) No, because it is a serious infringement of civil liberties

#### **Question 4**

Jeremy, Tony, Jacob and Lucy are students who go to the same school. Jeremy only follows 2 people from school on Instagram. Everyone at school follows Lucy. The only people whom Tony follows on Instagram are those who follow him first, and Tony follows Jeremy.

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



A survey was conducted across some classes in a school to determine the forms of Asian entertainment media that its students engaged with in their spare time.



Which of the following statements is true?

(A) More students engaged with C-dramas and anime, than K-dramas and K-pop only.

(B) A total of 17 students engaged with anime and K-pop but not K-dramas.

(C) Less than 20% of all students who engaged with K-dramas also engaged with anime.

(D) Less than half of the students surveyed engaged with K-pop.

#### **Question 6**

Joe has five 50 cent and three 5 cent pieces.

He picks two of these coins at random, one after another.

Joe states that the probability that both coins will be 50 cent pieces is 1/4. Is Joe correct?

(A) Yes, because there is a 1/2 chance of the first coin being a 50 cent coin and 1/2 chance that the second is a 50 cent coin (B) Yes, because he picks the coins at random.

(C) No, the probability is 5/16

(D) No, the probability is 5/14

# Subtest 3 - Quantitative Reasoning

• On this page, there are 13 quantitative reasoning sample questions which you should complete within 8 minutes and 40 seconds.

## Questions 1 - 4

The chart below shows the results of a traffic survey conducted this year. The numbers in each bar show the actual number of vehicles of each colour counted. These are all the types of vehicles considered.



#### Question 1

What is the approximate ratio of red vehicles to white?

(A) 1:2
(B) 1:3
(C) 3:7
(D) 7:20
(E) 2:5

#### Question 2

In a similar survey conducted last year, compared to this year there were 5 fewer red cars, 1 fewer red van and 3 fewer red motorcycles, but the same number of all the other vehicles. Which of the following fractions correctly represents the increase in red vehicles from last year to this year?

(A) 1/6

(B) 1/4 (C) 1/3

(D) 1/2

(E) 3/4

#### **Question 3**

If two years ago the ratio of vans: HGVs was 1:3, how many HGVs were counted two years ago?

(A) 31
(B) 50
(C) 63
(D) 93
(E) Can't tell

#### Question 4

A large motor reseller (which sells vans/minibuses and buses/coaches) uses these statistics to work out how many vehicles they should preorder for resale in their yard, and in what colours in a given year. The reseller preorders vehicles in the same proportions as these statistics.

Based on this survey, they have purchased 377 white vans/minbuses. How many blue buses/coaches will they pre-order?

A) 3

B) 26 C) 39

D) 104

E) 403

#### Questions 5 - 8

The table below shows the age distribution of a population of Whatyacallit, a small town, where all of the people can be divided into the age groups shown in the table:

Age Group	Population	Age group	Population
0-4	6,450	45-49	8,400
5-9	7,600	50-54	10,150
10-14	8,450	55-59	9,600
15-19	7,400	60-64	7,950
20-24	5,550	65-69	7,450
25-29	6,150	70-74	7,100
30-34	8,100	75-79	6,450
35-39	8,750	80-84	4,500
40-44	8,450	85-89	2,750

#### **Question 5**

How many people in the town are younger than 20?

(A) 7,400
(B) 28,900
(C) 29,000
(D) 29,900
(E) 35,450

#### Question 6

If everyone retires at 65, what fraction of the population is within 10 years of retiring?

(A) 1/4
(B) 1/5
(C) 1/7
(D) 1/10
(E) 1/20

# Question 7

What is the ratio of schoolchildren (5-19) to retired people (65+)?

(A) 4:5 (B) 4:3

(C) 2:1

(C) 2.1 (D) 1:2

(E) 5:4

It is known that 42% of the population between 60 and 79 is female and 58% of the population between 80 and 89 is female. What is the approximate proportion of males between 60-89?

(A) 50% (B) 52%

(C) 55%

(D) 57%

(E) 59%

## Questions 9 - 12

A television streaming service changes its fees from last year to this year.

The following represents the original and new fees (in \$ per month) for it's basic, premium and ultimate packages, as well as showing the number of customers paying for each of these packages.

Packages	Last Year		This Year	
	Price	No. of Customers	Price	No. of Customers
Basic	7	3250	8.5	4425
Premium	12	7845	14	5595
Ultimate	15	5220	18	2250

Note: The service can only be purchased/switched to a different package at the beginning of a month.

#### Question 9

What is the percentage change in the number of customers from last year to this year?

(A) 19.85% increase

(B) 24.79% increase

(C) 32.97% decrease

(D) 24.79% decrease

(E) 10.8% decrease

#### **Question 10**

What is the total change in income the company will incur from the sales of these packages per month, to the nearest \$1000?

(A) \$19,000
(B) \$156,000
(C) \$39,000
(D) \$195,000
(E) \$82,000

#### **Question 11**

A customer bought the basic package in January last year. They then switch from the basic package to the ultimate package in October of that year, however, due to the raise in price they then switch to the premium package in June of this year. How much are they paying for the service over the course of the 2 full years?

(A) \$328
(B) \$244
(C) \$188
(D) \$273
(E) \$296

The company decide to raise their prices by the following from this year to the next year: 10% increase for basic package, 7% decrease for premium package and 15% increase for ultimate package.

If the amount of customers for each package remains the same as this year, what is the percentage change in income from last year to next year?

(A) 17.6%
(B) 11.75%
(C) 21%
(D) 7.25%
(E) 8.49%

# Question 13

Bobby wants to save up for a holiday. He puts \$1700 into a stock portfolio which increases by 3% in the first month, then decreases by 5% in the second month and increases by 7% in the third month. Bobby withdraws \$200 at the end of the second month for personal expenses.

How much will the stock portfolio be worth at the end of these three months (to the nearest dollar)?

(A) \$1521
(B) \$1566
(C) \$1753
(D) \$1780
(E) \$1967

# Subtest 4 - Abstract Reasoning

• On this page, there are 12 abstract reasoning sample questions which you should complete within 2 minutes and 50 seconds.

AR1



#### Question 1

Does the following shape belong to Set A or Set B or Neither?

A. Set A

B. Set B

C. Neither



Does the following shape belong to Set A or Set B or Neither?



## **Question 3**

Does the following shape belong to Set A or Set B or Neither?



B. Set B C. Neither

#### **Question 4**

Does the following shape belong to Set A or Set B or Neither?



A. Set A B. Set B

#### **Question 5**

Does the following shape belong to Set A or Set B or Neither?



A. Set A B. Set B

C. Neither

AR2

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Which of the following shapes belongs in Set A?



# Question 2

Which of the following shapes belongs in set B?



# **Question 3**

Which of the following shapes belongs in set A?



#### Question 4

Which of the following shapes belongs in Set B?



Which of the following shapes belongs in Set B?



AR3



Which figure completes the series?



AR4





Which figure completes the statement?



# Subtest 5 - Situational Judgement

• On this page, there are 12 situational judgement sample questions which you should complete within 4.5 minutes.

#### SJ1 - Importance

A junior doctor, Brian, has just commenced work on a busy surgical ward. He shares his workload with another junior colleague, John. Brian has noticed that John is consistently late for work. This has been going on for the past fortnight. John being late has resulted in Brian taking on extra responsibilities on the ward to ensure that patients receive appropriate care.

How important to take into account are the following considerations for Brian when deciding how to respond to the situation?

#### **Question 1**

Whether John being late has led to patient care being compromised

- A) Very important
- B) Important
- C) Of minor importance
- D) Not important at all

#### **Question 2**

Whether other medical and nursing staff have noticed that John has been late to work

- A) Very important
- B) Important
- C) Of minor importance
- D) Not important at all

#### **Question 3**

The underlying reasons that have led to John being late to work

- A) Very important
- B) Important
- C) Of minor importance
- D) Not important at all

#### **Question 4**

The degree to which Brian and John know each other and whether they have a close working relationship

- A) Very important
- B) Important
- C) Of minor importance
- D) Not important at all

#### SJ2 - Appropriateness

Annie, a medical student, is shadowing a senior doctor, Dr Santos, in a hospital. They are seeing a patient, Mike, who has been admitted with a hernia in the groin. Dr Santos examines Mike's groin, and asks if Mike minds if Annie also examines him. Annie knows that this will be a valuable learning opportunity for her. Mike looks embarrassed, but agrees to the examination. Dr Santos leaves to attend to another patient.

How **appropriate** are each of the following responses by <u>Annie</u> in this situation? Assume that each of the following responses would be said politely.

#### Question 1

"Thank you for allowing me to examine you."

- A) A very appropriate thing to say
- B) Appropriate, but not ideal
- C) Inappropriate, but not awful
- D) A very inappropriate thing to say

"You seem uncomfortable. Are you sure you are happy for me to examine you?"

- A) A very appropriate thing to say
- B) Appropriate, but not ideal
- C) Inappropriate, but not awful
- D) A very inappropriate thing to say

# **Question 3**

"It's ok, I don't have to examine you."

- A) A very appropriate thing to say
- B) Appropriate, but not ideal
- C) Inappropriate, but not awful
- D) A very inappropriate thing to say

#### SJ3 - Appropriateness

A dental student, George, has been contacted by his supervisor, Dr Jefferson, to arrange a mid-placement review. The purpose of the review is to assess George's learning portfolio. George has been on a placement at a busy dental clinic, and has not kept up to date with his supervised learning events. Furthermore, George has not completed any of the learning targets he had agreed upon with Dr Jefferson at the start of the rotation.

How appropriate are each of the following responses by George in this situation?

#### Question 1

Arrange a meeting with Dr Jefferson and describe why the targets have not been met.

A) A very appropriate thing to do

- B) Appropriate, but not ideal
- C) Inappropriate, but not awful
- D) A very inappropriate thing to do

#### Question 2

Change the targets made on the learning portfolio to make them easier to achieve, as Dr Jefferson is unlikely to notice the change.

- A) A very appropriate thing to do
- B) Appropriate, but not ideal
- C) Inappropriate, but not awful
- D) A very inappropriate thing to do

#### **Question 3**

Stay back late after the placement has finished in order to complete the supervised learning events.

A) A very appropriate thing to do

- B) Appropriate, but not ideal
- C) Inappropriate, but not awful
- D) A very inappropriate thing to do

Meet with Dr Jefferson as planned, and book another meeting with Dr Jefferson in two weeks to reassess the progress made.

A) A very appropriate thing to doB) Appropriate, but not idealC) Inappropriate, but not awful

D) A very inappropriate thing to do

#### SJ4 - Most/Least Appropriate

A medical student, Joanne, is interviewing Mr Jones, a patient with a chronic lung condition. Joanne has read in Mr Jones' notes that he has stated that he has quit smoking, which is a major reason why he has been assessed as being suitable for home oxygen. Joanne is aware that only patients who have quit smoking are offered home oxygen, and that smoking on home oxygen is very dangerous. While conducting the interview, Joanne notices a pack of cigarettes in Mr Jones' jacket pocket.

Choose the **one most appropriate** action and the **one least appropriate** action that **Joanne** should take in response to this situation.

1. Inform the senior doctor immediately, as this may be a risk to Mr Jones' health.

2. Overlook the packet of cigarettes, so as not to damage the relationship that Joanne has built with Mr Jones.

3. Ask Mr Jones further questions to understand what she has seen, and to assess whether her suspicions regarding him smoking are correct.

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