



# Victorian Certificate of Education 2010

SUPERVISOR TO ATTACH PROCESSING LABEL HERE

## STUDENT NUMBER

Figures

Words


Letter

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# PSYCHOLOGY

## Written examination 2

Thursday 4 November 2010

Reading time: 9.00 am to 9.15 am (15 minutes)

Writing time: 9.15 am to 10.45 am (1 hour 30 minutes)

## QUESTION AND ANSWER BOOK

### Structure of book

<i>Section</i>	<i>Number of questions</i>	<i>Number of questions to be answered</i>	<i>Number of marks</i>
A	44	44	44
B	16	16	46
			Total 90

- Students are permitted to bring into the examination room: pens, pencils, highlighters, erasers, sharpeners and rulers.
- Students are NOT permitted to bring into the examination room: blank sheets of paper and/or white out liquid/tape.
- No calculator is allowed in this examination.

### Materials supplied

- Question and answer book of 20 pages.
- Answer sheet for multiple-choice questions.

### Instructions

- Write your **student number** in the space provided above on this page.
- Check that your **name** and **student number** as printed on your answer sheet for multiple-choice questions are correct, **and** sign your name in the space provided to verify this.
- All written responses must be in English.

### At the end of the examination

- Place the answer sheet for multiple-choice questions inside the front cover of this book.

**Students are NOT permitted to bring mobile phones and/or any other unauthorised electronic devices into the examination room.**

**SECTION A – Multiple-choice questions****Instructions for Section A**

Answer all questions in pencil on the answer sheet provided for multiple-choice questions.

Choose the response that is **correct** or that **best answers** the question.

A correct answer scores 1, an incorrect answer scores 0.

Marks will **not** be deducted for incorrect answers.

No marks will be given if more than one answer is completed for any question.

**AREA OF STUDY 1 – MEMORY**

*The following information relates to Questions 1, 2 and 3.*

Derek was in the park watching his son Jack play on the swings.

**Question 1**

Derek perceived Jack playing on the swing as a continuous moving image rather than a sequence of still frames moving quickly.

This is because of Derek's

- A. iconic memory.
- B. echoic memory.
- C. central executive.
- D. short-term memory.

While he was watching Jack, Derek noticed a woman wandering around the park seat where some parents had placed their handbags.

Later, on the same day, the police called at Derek's home and informed him that handbags had been stolen from the park seat that morning. The police asked Derek to describe the woman he had seen wandering around near the handbags.

**Question 2**

When the police asked Derek to describe the woman he had seen in the park, he was unable to recall much detail about her.

This was because Derek did not use \_\_\_\_\_ to encode the detail in his memory.

- A. chunking
- B. consolidation
- C. method of loci
- D. elaborative rehearsal

**Question 3**

The police took Derek back to the park so that he might be able to remember more detail about the woman he had seen.

The police did this because they hoped that \_\_\_\_\_ would help Derek to remember.

- A. method of loci
- B. narrative chaining
- C. state-dependent cues
- D. context-dependent cues

*The following information relates to Questions 4 and 5.*

In a radio advertisement Ramesh heard a 10 digit telephone number which he wanted to remember. Ramesh immediately tried to enter the number on his mobile phone. However, he could only remember the first six digits of the telephone number.

**Question 4**

The telephone number did not remain in Ramesh's \_\_\_\_\_ memory long enough for him to successfully enter it into his mobile phone.

- A. iconic
- B. procedural
- C. long-term
- D. short-term

**Question 5**

To retain the 10 digits of the telephone number for just enough time to enter it into his mobile phone, Ramesh could try

- A. chunking.
- B. consolidation.
- C. the primacy effect.
- D. narrative chaining.

**Question 6**

The decay theory of forgetting may explain

- A. why some people are reported to have repressed memories.
- B. why amnesiacs sometimes retain their procedural memories.
- C. why elderly people remember childhood memories better than more recent memories.
- D. how information is lost from short-term memory.

**Question 7**

Mrs Spanos recently visited a friend who had moved into a new home in the country. It was difficult for Mrs Spanos to find her friend's home but, by following the map, she eventually arrived. The next time she visited her friend, she was able to find the house without needing to use the map.

To find her friend's home on the second visit, Mrs Spanos was using

- A. method of loci.
- B. iconic memory.
- C. procedural memory.
- D. state-dependent cues.

**Question 8**

When Gina was 8 years old she witnessed a robbery in a petrol station. It was a very frightening experience for her. However, ten years later, Gina could not remember anything about the event.

Gina's inability to remember was most likely due to

- A. infantile amnesia.
- B. anterograde amnesia.
- C. repression of the memory of the incident.
- D. state-dependent forgetting about the incident.

**Question 9**

Christos lost his debit card and the bank replaced it a week later. However, Christos now has difficulty remembering the new Personal Identification Number (PIN) for his new debit card because he keeps remembering the old PIN.

Christos is experiencing

- A. retrograde amnesia.
- B. anterograde amnesia.
- C. proactive interference.
- D. retroactive interference.

**Question 10**

Elvie is a healthy woman who recently celebrated her 90th birthday. At the party, Elvie's granddaughter made a speech highlighting all of Elvie's life achievements. However, after the speech, Elvie was unable to remember the details of her granddaughter's speech.

Elvie's inability to remember was most likely due to

- A. Alzheimer's disease.
- B. anterograde amnesia.
- C. motivated forgetting.
- D. age-related memory decline.

**Question 11**

Shelley was using mental arithmetic to calculate the cost of six bread rolls at the bakery.

Which subsystems of her working memory was Shelley using?

- A. the visuo-spatial sketchpad to visualise the calculation, the phonological loop to mentally say the times tables and the central executive to integrate her knowledge of multiplication
- B. the central executive to integrate her knowledge of multiplication, the visuo-spatial sketchpad to visualise the calculation and echoic memory to mentally say the times tables
- C. the visuo-spatial sketchpad to visualise the calculation, the phonological loop to integrate her knowledge of multiplication and the central executive to mentally say the answer
- D. the phonological loop to vocalise the multiplication, iconic memory to visualise the calculation and the central executive to mentally say the answer

**Question 12**

Michael is completing a French listening comprehension exercise.

According to the information-processing model of memory, which three processes are required for Michael to complete the task?

- A. attention, encoding and storage
- B. attention, storage and retrieval
- C. encoding, storage and retrieval
- D. encoding, storage and consolidation

*The following information relates to Questions 13 and 14.*

Five years ago Samantha sustained permanent brain damage when she was in a serious cycling accident. Samantha can remember most aspects of her life prior to the accident. However, she cannot recall anything about the accident and she is unable to learn and remember new information.

**Question 13**

Samantha's inability to learn and remember new information is known as \_\_\_\_\_ amnesia.

- A. proactive
- B. retrograde
- C. retroactive
- D. anterograde

**Question 14**

Which part of Samantha's long-term memory is most likely to have been affected by her accident?

- A. sensory
- B. working
- C. procedural
- D. declarative

**Question 15**

The process of retrieval involves

- A. keeping information in short-term memory.
- B. moving information from long-term memory into short-term memory.
- C. visiting the place where the original memory was formed and encoded.
- D. moving information from short-term memory into long-term memory.

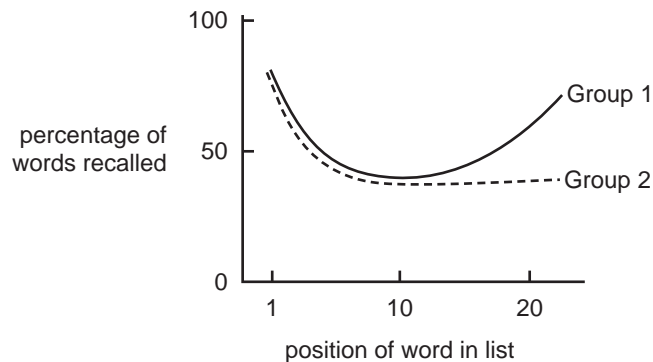
*The following information relates to Questions 16 and 17.*

Two groups volunteered to participate in a word recall experiment that was being conducted at a university.

**Group 1** – The experimenter read aloud a list of twenty unrelated words to the participants. The experimenter then immediately asked the participants to recall as many of the words as possible.

**Group 2** – The experimenter read aloud a list of twenty unrelated words to the participants. The experimenter then asked the participants to sing a nursery rhyme. After the participants had sung the nursery rhyme, the experimenter asked them to recall as many words as possible from the list they had heard before they sang the nursery rhyme.

The results of the experiment are shown in the figure below.



### Question 16

Which of the following statements best explains the difference in recall between the two groups for the last items in the list?

- A. Recall was affected by context-dependent forgetting for Group 2 but not Group 1.
- B. The nursery rhyme between presentation of the word list and the recall test eliminated the primacy effect for Group 2.
- C. There was a longer delay between presentation of the last word and the test of recall for Group 1 than for Group 2.
- D. The singing of the nursery rhyme between the list and the recall test for Group 2 prevented participants from rehearsing the final items of the word list.

### Question 17

The participants in Group 1 are most likely to have stored the first few words of the list in their \_\_\_\_\_ memory, and the last few words in their \_\_\_\_\_ memory.

- A. long-term; iconic
- B. iconic; short-term
- C. short-term; long-term
- D. long-term; short-term

*The following information relates to Questions 18 and 19.*

During a netball game Pina was briefly knocked unconscious when her head was bumped by another player. Pina suffered some memory loss.

**Question 18**

Consolidation theory suggests that Pina will be unable to remember

- A. the person who had scored the goal before her injury.
- B. the names of the members of her team.
- C. the position she plays for her team.
- D. her mobile telephone number.

**Question 19**

According to consolidation theory, Pina's memory loss is due to

- A. her short-term memory being erased.
- B. the destruction of existing memory traces.
- C. her memory traces for events just prior to the incident being repressed.
- D. a disruption to the formation of her memory traces for the events just prior to the incident.

**Question 20**

David completed one semester of Italian language studies. He studied for a mid-semester vocabulary test and learnt the 20 words in 100 minutes. Later in the semester, he revised the same 20 vocabulary words for the end of the semester examination. It took him 25 minutes to relearn all of the words.

What would be the saving score for David's relearning?

- A. 25%
- B. 50%
- C. 75%
- D. 100%

**Question 21**

The way in which a school textbook is designed can affect how well students learn the content.

According to the semantic network theory, the best way of organising the information in a chapter to assist students to remember the material would be to present the concepts in

- A. chunks.
- B. acronyms.
- C. hierarchies.
- D. paragraphs of text.

**Question 22**

James is studying for an Economics test which he will sit the next day.

Which of the following sequences would be best if James wants to minimise the effect of interference on his ability to remember the information for his test?

- A. study, sleep, test
- B. study, exercise, test
- C. study, listen to music, test
- D. study, complete his history homework, test

**AREA OF STUDY 2 – LEARNING****Question 23**

A fixed-action pattern is a useful behaviour because it

- A. is species specific.
- B. prevents cross-mating of species.
- C. does not depend on a reflex response.
- D. ensures the animal has the capacity to meet a survival need.

**Question 24**

It is not generally possible to ‘teach’ a baby to crawl earlier than normal because

- A. crawling is a complex behaviour.
- B. a baby cannot respond to reinforcement.
- C. a baby is unable to comprehend complex instructions.
- D. crawling is due to maturation.

**Question 25**

In classical conditioning, learning is said to have occurred when

- A. the conditioned stimulus and unconditioned stimulus have had several pairings.
- B. the neutral stimulus produces the unconditioned response on every occasion it is presented.
- C. the conditioned stimulus produces the conditioned response in the absence of the unconditioned stimulus.
- D. the unconditioned stimulus becomes the conditioned stimulus and consistently produces the conditioned response.

*The following information relates to Questions 26–29.*

Every time Robert opened a can of dog food in the laundry, his new puppy Max responded by turning around in circles and barking. After a couple of weeks, Robert noticed that Max turned around in circles and barked every time Robert went into the laundry, even if he did not have the can-opener or the dog food with him.

**Question 26**

Before conditioning, Robert going into the laundry was the

- A. neutral stimulus.
- B. conditioned stimulus.
- C. conditioned response.
- D. unconditioned response.

**Question 27**

After conditioning, Max’s behaviour of turning around in circles and barking was the

- A. neutral stimulus.
- B. conditioned stimulus.
- C. conditioned response.
- D. unconditioned response.



**Question 28**

Robert noticed that Max did not turn around in circles and bark when Robert's mother went into the laundry. This is an example of

- A. extinction.
- B. stimulus generalisation.
- C. stimulus discrimination.
- D. unconditioned behaviour.

**Question 29**

When Max was three months old he was moved into a kennel outside and Robert started opening Max's food outside instead of in the laundry. After a week Robert noticed that Max no longer turned around in circles or barked when he saw Robert going into the laundry.

This is an example of

- A. extinction.
- B. stimulus generalisation.
- C. stimulus discrimination.
- D. unconditioned behaviour.

**Question 30**

In classical conditioning, spontaneous recovery occurs when

- A. a previously conditioned response reappears after a period of extinction.
- B. a behaviour similar to a previously conditioned response emerges after a period of time.
- C. a previously learned conditioned stimulus–unconditioned stimulus association is learned more quickly in a second acquisition phase.
- D. a previously conditioned response initially increases during the process of extinction.

**Question 31**

Antabuse is a drug which can be used to treat alcoholism. When it is taken together with alcohol, it immediately causes nausea and vomiting, and stops the patient wanting alcohol.

In this case, the treatment with Antabuse is a form of

- A. one trial learning – taste aversion.
- B. classical conditioning – extinction.
- C. one trial learning – stimulus discrimination.
- D. classical conditioning – negative reinforcement.

**Question 32**

Punishment could be said to unintentionally reinforce undesirable behaviour if

- A. the punishment produces an unwanted aggressive response.
- B. the punishment does not immediately follow the undesirable behaviour.
- C. desirable behaviour replaces the undesirable behaviour following the punishment.
- D. undesirable behaviour is increased due to the attention received through punishment.

*The following information relates to Questions 33 and 34.*

Maryanne worked hard with her kindergarten class to teach them to say 'please' and 'thank you'. Maryanne rewarded the students by saying 'well done' each time they said 'please' or 'thank you' at an appropriate time. After a week, Maryanne decided the class knew how to use these words correctly and stopped saying 'well done'. After a couple of weeks, she noticed that the students no longer said 'please' and 'thank you'.

**Question 33**

This is most likely because

- A. Maryanne did not punish the students.
- B. a learned response will become extinct if it is not reinforced.
- C. the students discriminated between saying 'please' and 'thank you' and getting a reward.
- D. Maryanne used a fixed-ratio schedule of reinforcement which is not as effective as a fixed-interval schedule.

**Question 34**

Another strategy Maryanne used was to keep the students indoors, when they wanted to play outside, until they used the words 'please' and 'thank you'.

This is an example of

- A. shaping.
- B. punishment.
- C. positive reinforcement.
- D. negative reinforcement.

**Question 35**

Melissa had always wanted to be a teacher. When she became a student teacher she spent two weeks watching a qualified teacher with a class of Year 9 students. Melissa carefully observed the techniques that the teacher used to manage the class. However, when Melissa took over she was unable to control the class.

In terms of observational learning, which of the following is the most likely reason for Melissa's inability to put into practice what she had learned by watching the teacher?

- A. Melissa did not pay sufficient attention to what the teacher was doing.
- B. Melissa was not motivated to learn how to manage the class.
- C. The teacher did not provide Melissa with reinforcement for managing the class.
- D. Melissa remembered what she had observed when she watched the teacher manage the class but did not have the ability to do it herself.

**Question 36**

The main conclusion to be drawn from Bandura's Bo-Bo doll experiments with observational learning in children is that learning

- A. is not dependent on operant conditioning.
- B. occurs through a process of trial and error.
- C. can occur in the absence of direct reinforcement or punishment.
- D. involves the positive transfer of learning from the model to the observer.

**Question 37**

A researcher conducted an experiment with a group of rats in a maze. The rats learned to find their way around the maze in order to receive a food pellet at the end. The researcher concluded that the rats had learned to find the pellet at the end of the maze through trial and error.

She drew this conclusion because

- A. the rats made a number of incorrect choices before determining the correct route to the food pellet.
- B. the rats received reinforcement from seeing the other rats succeed in the maze and reach the food pellet.
- C. the rats were not directly rewarded for making the correct turns in the maze, they were only rewarded for reaching the end of the maze.
- D. the pairing of the unconditioned stimulus and conditioned stimulus produced the conditioned response of moving correctly through the maze.

*The following information relates to Questions 38 and 39.*

Edward Thorndike studied animal intelligence using a hungry cat in a puzzle box with a fish outside the box.

**Question 38**

Thorndike's 'Law of Effect' was developed as a result of his observation that the cat

- A. was able to learn to escape the puzzle box and get the fish.
- B. accidentally pushed the lever to open the puzzle box and get the fish.
- C. spent a long time learning how to escape the puzzle box and get the fish.
- D. repeated the behaviour of pressing on the lever in order to escape the puzzle box and get the fish.

**Question 39**

In Thorndike's experiment, the fish is the \_\_\_\_\_ and the action of pushing the lever to escape the box is the \_\_\_\_\_.

- A. reinforcement; reward
- B. reward; response
- C. conditioned stimulus; conditioned response
- D. unconditioned stimulus; unconditioned response

**Question 40**

If Watson and Rayner proposed to carry out their 'Little Albert' experiment today, it is likely that an ethics committee would not approve it due to the breach of the principle of Beneficence.

In their experiment Watson and Rayner breached the principle of Beneficence by

- A. not extinguishing little Albert's fear of white fluffy objects.
- B. deceiving little Albert's mother about the nature of the experiment.
- C. publishing information about the experiment that included little Albert's name.
- D. causing distress to little Albert that was out of proportion to any gains from the experiment.

**Question 41**

Frank did well on his first mathematics topic test. Two months later, Frank completed a mathematics test on a different topic. In the second topic, Frank used the same problem-solving methods as he used for the test on the first topic. Frank did poorly on the test on the second topic.

Which of the following best explains why Frank did poorly on the test on topic 2?

- A. positive transfer of learning
- B. negative transfer of learning
- C. trial and error learning
- D. behaviour modification

**Question 42**

When Jack received a detention at school, his father took away his Playstation for a period of time.

Jack's father applied

- A. punishment.
- B. negative transfer of learning.
- C. positive reinforcement.
- D. negative reinforcement.

**Question 43**

Which of the following statements is correct?

- A. In classical conditioning reinforcement occurs after the response.
- B. In operant conditioning reinforcement occurs before the response.
- C. In classical conditioning learners control their response to a stimulus.
- D. In operant conditioning learners control their response to a stimulus.

**Question 44**

Copycat crimes are criminal acts that are modelled on previous crimes which have been reported in newspapers and on television.

Which learning theory best explains copycat crimes?

- A. trial and error learning
- B. operant conditioning
- C. classical conditioning
- D. observational learning

**SECTION B – Short answer questions****Instructions for Section B**

Answer **all** questions in the spaces provided.

**AREA OF STUDY 1 – MEMORY****Question 1**

Dr Sewell is interested in the effect of the passing of time on long-term memory.

In one of his studies, the participants were twenty males aged between 74 and 75 who had all been together as children in the same grade six class when they were at primary school. These participants had never attended a school reunion, and had had no contact with each other since they had left their primary school.

To conduct the study, Dr Sewell used an independent groups design and randomly allocated the participants to one of two experimental conditions. Each participant was individually tested.

For Condition 1, participants were required to name as many members of their grade six class as they could.

For Condition 2, participants were required to identify names of their 20 grade six classmates from a list of 40 names.

The results are indicated in the following table.

Mean number of grade six classmates correctly named  
(maximum possible = 20 names)

<b>Condition</b>	<b>Mean number of names correctly identified</b>
Condition 1 Name as many grade six classmates as possible	5
Condition 2 Identify the correct names of the 20 grade six classmates from a list of 40 names	15

The difference between the mean scores for each condition was significant.

- a. Identify the type of long-term memory Dr Sewell was testing, and give a reason for your answer.

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2 marks

- b. What form of retrieval was Dr Sewell testing in each condition?

Condition 1 \_\_\_\_\_

Condition 2 \_\_\_\_\_

2 marks

c. Why did the participants perform better in Condition 2 than in Condition 1?

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1 mark

d. Is it possible for Dr Sewell to conclude from this study that old age affects memory? Explain your answer.

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2 marks

**Question 2**

Dr Perlstein conducted a study on forgetting in humans. Twenty university students volunteered to be participants in his study. Dr Perlstein used an independent groups experimental design and randomly allocated participants to two groups.

- Group A: participants were asked to learn a list of 20 nonsense syllables.
- Group B: participants were asked to learn a list of 20 different animal names.

All the participants were given four minutes to learn their list. At the end of the four-minute study period, the list was removed and all participants were immediately tested for the free recall of their list.

The participants were subsequently retested for the free recall of their list at different time intervals over 31 days.

The results of Dr Perlstein’s study are shown in the forgetting curves below.



a. Why is the **shape** of the forgetting curve similar for both groups?

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2 marks

b. Why has Group B recalled a greater percentage of items than Group A?

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1 mark

**Question 3**

The city mayor, Mrs Bell, needs to remember the details of her speech about plans for improving car parking, recycling, rubbish collection, pedestrian safety, care for the elderly and kindergartens.

With specific reference to Mrs Bell's speech, explain how she could use the method of loci to remember these details.

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3 marks

**Question 4**

What is **one** criticism of retrieval failure as a theory of forgetting?

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1 mark

**AREA OF STUDY 2 – LEARNING**

**Question 5**

A surfer who stays in the water waiting for the next good wave is being reinforced on a \_\_\_\_\_ schedule of reinforcement.

1 mark

**Question 6**

Frank competes in a high-level athletics competition. On the last two occasions that he won the 100-metre race, he wore his gold chain. Frank now wears his gold chain every time that he competes, believing it to be his ‘lucky chain’.

Using the language of operant conditioning, explain how Frank has learned to wear his lucky gold chain every time he races.

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3 marks

**Question 7**

A phobia is an irrational and intense fear of a specific object, event or situation. When she was a child, Jan saw a large spider fall on her mother. Her mother screamed and fainted and this made Jan feel very frightened. Since that time Jan has had a phobia of spiders.

a. In this scenario, identify the

i. unconditioned stimulus \_\_\_\_\_

ii. conditioned stimulus \_\_\_\_\_

1 + 1 = 2 marks

Jan visited a psychologist in the hope of treating her phobia.

b. Using the language of classical conditioning, explain how the psychologist might treat Jan so she is no longer afraid of spiders.

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2 marks



- c. Using the language of classical conditioning, explain why Jan's experience with spiders may lead her to experience an irrational fear of crabs.

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1 mark

### Question 8

Vicki had not completed her Psychology homework. When she told her teacher she had not done the homework, the teacher was very angry and gave Vicki a detention. The next time Vicki had not done her homework, she lied and told her mother that she did not feel well so she could stay home from school to complete the work. She returned to school and was able to hand in the work without getting a detention. Vicki then repeated the behaviour of staying home each time she did not complete homework.

- a. What type of learning is Vicki displaying when she avoids going to school because she has not done her homework?

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1 mark

- b. Explain your answer.

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2 marks

### Question 9

Use an example to explain 'retention' in observational learning.

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2 marks

## AREA OF STUDY 3 – RESEARCH INVESTIGATION

### Background

Dr Nicholls is a psychologist interested in how the organisation of concepts in semantic memory might affect the recall of learned information. She predicts that people will recall more words from a studied list if the words are paired with words that are related in meaning.

### Experimental design

To investigate this issue, Dr Nicholls designed a memory experiment in which **all** participants were presented with the same list of sixty pairs of words to learn.

Half of the word pairs in the study list were **related** in meaning (for example, cat–dog, nurse–doctor, apple–orange), and the other half were **unrelated** in meaning (for example, paper–shirt, window–butter, tree–hammer).

After studying the pairs of words the participants were presented with the first word from each pair as a cue and were required to recall the second word.

Dr Nicholls determined that the results would be significant if the  $p$  value obtained was less than 0.05.

### Participants

Twenty first-year university students volunteered to participate in the experiment.

### Procedure

The experiment consisted of a study phase and a test phase.

**Study phase** – All participants were asked to read aloud each of the 60 word pairs in the study list.

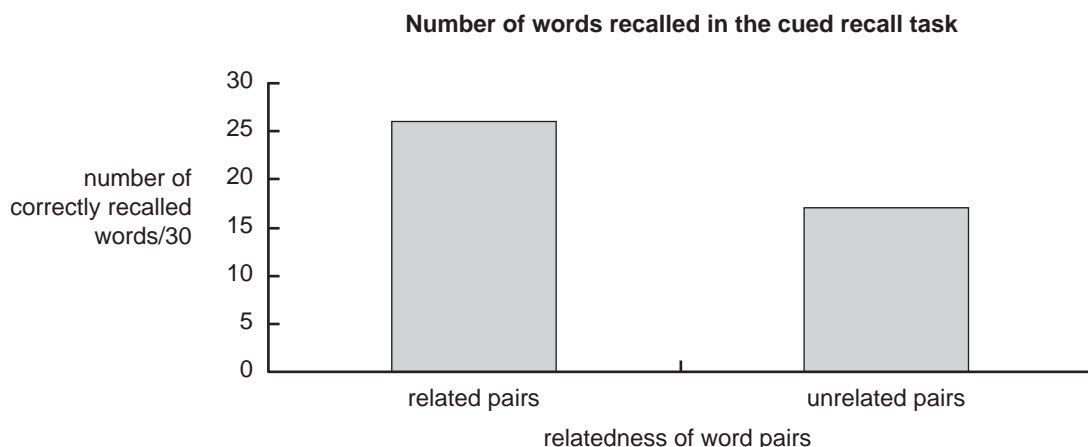
- half of the participants studied the 30 **related** word pairs first, followed by the **unrelated** word pairs
- half of the participants studied the 30 **unrelated** word pairs first, followed by the **related** word pairs

**Test phase** – The test phase immediately followed the study phase.

Participants were presented with the first word from each of the 60 word pairs as a cue for recall. Their task was to recall the word that had been paired with each cue word.

### Results

The results of Dr Nicholls' study are presented in the figure below. She conducted a statistical test to determine whether the difference between the means for the two experimental conditions was significant and found that  $p = 0.02$ .



**Question 10**

What are the dependent and independent variables in this experiment?

Dependent variable \_\_\_\_\_

Independent variable \_\_\_\_\_

2 marks

**Question 11**

What experimental design did Dr Nicholls use?

\_\_\_\_\_

1 mark

**Question 12**

The procedure for this experiment states that

- half of the participants studied the 30 **related** word pairs first, followed by the **unrelated** word pairs
- half of the participants studied the 30 **unrelated** word pairs first, followed by the **related** word pairs.

a. What is the term for this feature of experimental design?

\_\_\_\_\_

1 mark

b. Why is this feature important for the experimental design used by Dr Nicholls?

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

2 marks

**Question 13**

Write an operational hypothesis for Dr Nicholls' experiment.

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

2 marks

**Question 14**

Explain the findings of Dr Nicholls' experiment with reference to both the descriptive statistics provided in the graph and to the results of the statistical test.

Findings \_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

3 marks

**Question 15**

a. What would be an alternative experimental design for Dr Nicholls' experiment?

\_\_\_\_\_

1 mark

b. Which design do you think is more appropriate for this study: Dr Nicholls' design or your alternative design?

\_\_\_\_\_

Provide a reason for your answer.

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

2 marks

**Question 16**

a. Name two ethical considerations that must be explained to participants by Dr Nicholls before the start of the experiment.

1. \_\_\_\_\_

2. \_\_\_\_\_

2 marks

b. Explain why each of these considerations is important from an ethical standpoint.

1. \_\_\_\_\_

\_\_\_\_\_

2. \_\_\_\_\_

\_\_\_\_\_

2 marks