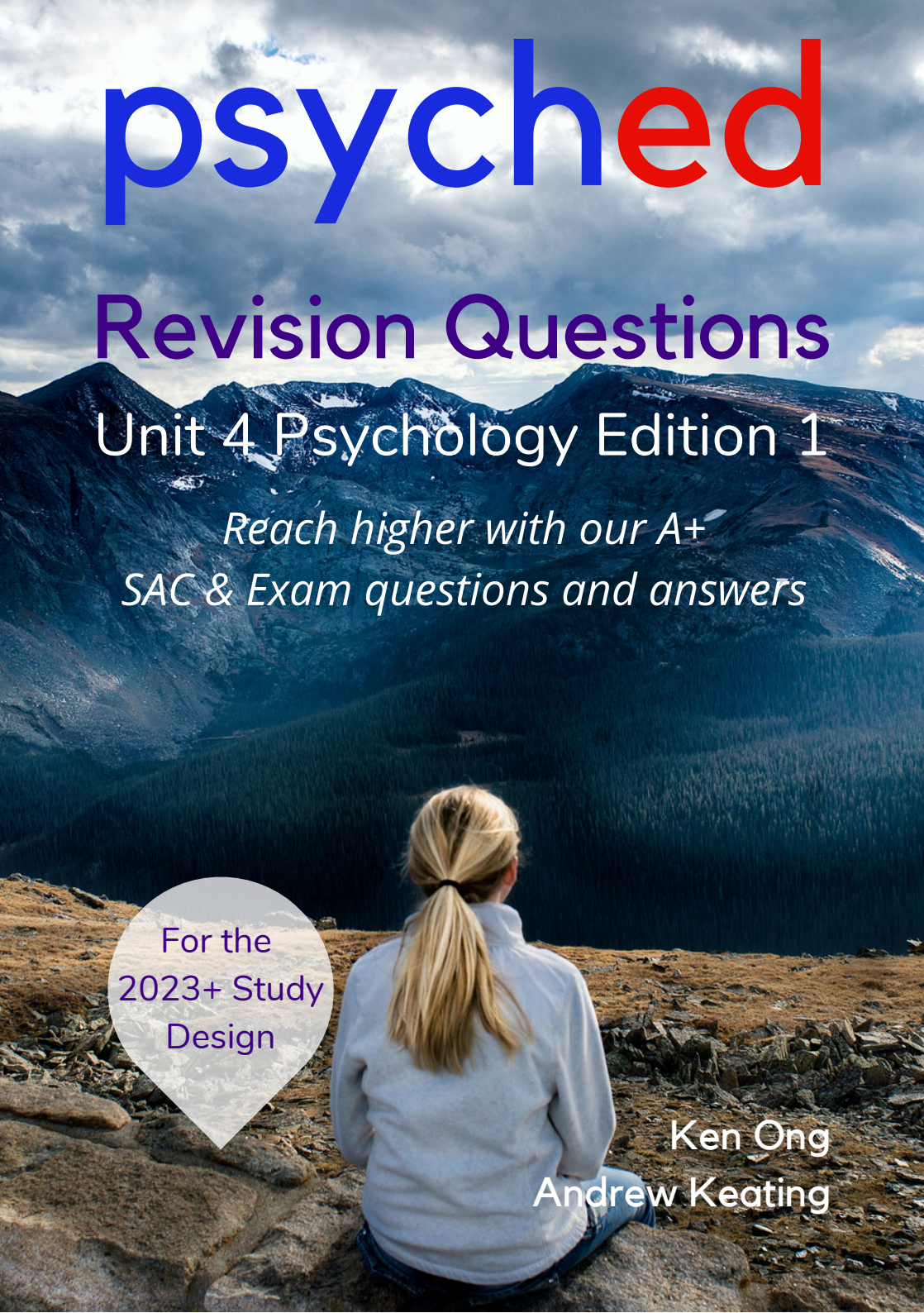




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Revision Questions

Unit 4 Psychology Edition 1

*Reach higher with our A+
SAC & Exam questions and answers*

For the
2023+ Study
Design

Ken Ong
Andrew Keating

Psyched Revision Questions

Unit 4 Psychology Edition 1

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Area of Study 1: How does sleep affect mental processes and behaviour?

On completion of this unit the student should be able to analyse the demand for sleep and evaluate the effects of sleep disruption on a person's psychological functioning.

Chapter 1: The demand for sleep

Rate each Study Design dot point a 😊, 😐 or ☹

😊 = I know everything about it and could explain it to someone

😐 = I know most things, but would struggle to explain it to someone

☹ = I don't know much about it

VCAA Psychology Study Design Key Knowledge:

- sleep as a psychological construct that is broadly categorised as a naturally occurring altered state of consciousness and is further categorised into REM and NREM sleep, and the measurement of physiological responses associated with sleep, through electroencephalography (EEG), electromyography (EMG), electro-oculography (EOG), sleep diaries and video monitoring
- regulation of sleep-wake patterns by internal biological mechanisms, with reference to circadian rhythm, ultradian rhythms of REM and NREM Stages 1–3, the suprachiasmatic nucleus and melatonin
- differences in, and explanations for, the demands for sleep across the life span, with reference to total amount of sleep and changes in a typical pattern of sleep (proportion of REM and NREM)

Question 30

The hormone secreted by the pineal gland in the brain that causes the sensation of sleepiness is called _____ and can be observed to be secreted in adolescents approximately _____ hours later than adults.

- A. serotonin; three
- B. serotonin; one to two
- C. melatonin; three
- D. melatonin; one to two

Use the following information to answer Questions 31-34.

Bec is having her sleep monitored in a sleep laboratory. She has electrodes placed over her jaw muscles and near her eyes.

Question 31 (2 marks)

Which device is likely to be placed over her jaw muscles, and what does this device measure?

Question 32 (2 marks)

Which device is likely to be placed near her eyes, and what does this device measure?

Her findings are summarised in the table below.

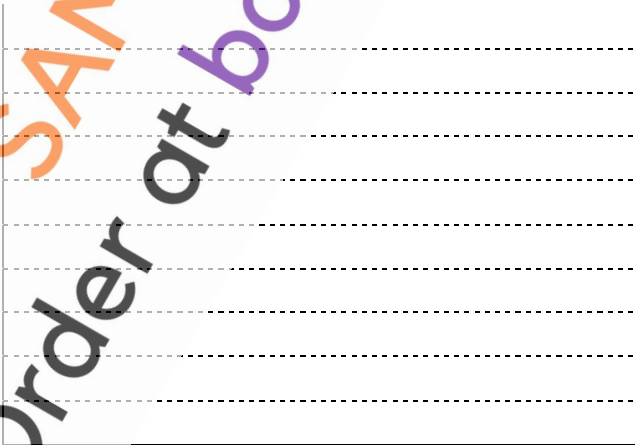
	Mean recall	Standard deviation
Context congruent recall condition	18.1	0.05
Context incongruent recall condition	10.1	0.02

Question 201 (2 marks)

Identify the independent and dependent variables of Ms Muffet’s experiment.

Question 202 (2 marks)

Represent the means of Ms Muffet’s investigation in a correctly labelled graphical representation using the axes provided below.



Use the following information to answer Questions 206-209.

A study by the National University of Singapore has shown that eating more than two portions of mushrooms a week could prevent memory problems from occurring later in life. They discovered that antioxidants present in the mushrooms could have a protective effect on the hippocampus. The study involved 663 Singaporean adults aged 60 and over who were tracked for lifestyle factors from 2011 to 2017, including how many portions of mushrooms they ate in their day-to-day life. Those that self-reported that they were 'Mushroom eaters' (who habitually ate more than two portions a week) performed higher in a cognitive test involving memory recall than those who habitually ate less than two portions of mushrooms a week ('Non-mushroom eaters').



Question 206 (1 mark)

Would data from the cognitive test be considered qualitative or quantitative?

Question 207 (1 mark)

Identify the independent variable of this study.

Chapter 7: Units 3&4 Trial Exam

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Victorian Certificate of Education

Letter

STUDENT NUMBER

PSYCHOLOGY

Written examination

Reading time: 15 minutes

Writing time: 2 hours 30 minutes

QUESTION AND ANSWER BOOK

Structure of book

Section	Number of questions	Number of questions to be answered	Number of marks
A	40	40	40
B	29	29	80
			Total 120

- 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 booklet

Instructions

- Write your student number in the space provided above on this page.
- All written responses must be in English.

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

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.

Question 211

An advantage of a sleep diary is that it

- A. does not require any specialised equipment.
- B. tends to be inaccurate.
- C. primarily sheds light on objective measures of sleep.
- D. allows researchers to measure sleep duration accurately and precisely.

Question 212

Which of the following best identifies the apparatus used to measure physiological responses associated with sleep?

	Detects, amplifies, and records electrical activity of the brain	Detects, amplifies, and records electrical activity of the muscles that move the eyes	Detects, amplifies, and records electrical activity of muscles
A.	electroencephalography	electro-oculography	electromyography
B.	electromyography	electroencephalography	electro-oculography
C.	electro-oculography	electromyography	electroencephalography
D.	electroencephalography	electromyography	electro-oculography

Question 213

Which of the following would be the most accurate and precise measure for a researcher to distinguish if a participant is in REM or NREM sleep?

- A. sleep diary
- B. video monitoring
- C. modelling
- D. electro-oculography

Use the following information to answer Questions 247-250.

Dr Twerk is interested in investigating whether Victorian high school students' levels of happiness change over the course of high school. He enlists the assistance of a local high school and chooses ten Year 7 students and ten Year 12 students to give him a self-reported happiness rating on the last day of school (with all participants surveyed on this day). The data collected from these students are presented below. In this investigation, a score of 10 indicates that the student was very happy, and a score of 1 indicates that the student was very unhappy.

Year 7 students	Year 12 students
7	7
7	10
8	6
6	5
5	7
7	2
7	8
7	9
8	1
8	9
Mean	6.4

Question 247

What type of data has Dr Twerk presented in this table?

- A. qualitative, subjective data
- B. qualitative, objective data
- C. quantitative, subjective data
- D. quantitative, objective data

Question 248

Dr Twerk realised that the Year 12 students had a _____ standard deviation than the Year 7 students, indicating a _____ variation of happiness levels in the older students.

- A. higher; greater
- B. lower; greater
- C. higher; smaller
- D. lower; smaller

Question 272 (3 marks)

Ching wanted to assess the factors that affect memory, so she recruited 20 participants for an experiment. In the first trial of the experiment, all participants were asked to remember a list of 30 words. Of these 30 words, 10 words began with the letter A. The experimenter read the list to each participant, and then asked them to recall aloud as many of the words that they could remember in one minute.

In the second trial, participants were asked to remember a different list of 30 words. Of these 30 words, 10 words also began with the letter A. When participants correctly recalled a word beginning with the letter A, a cup of water was splashed onto them, which annoyed the participants. Four more trials were conducted using the same method as the second trial, and the results were recorded in the table below. On each trial, a different list of 30 words was used and each list contained 10 words beginning with A.

Trial	1	2	3	4	5	6
Mean number of words recalled starting with the letter A	8.1	9.7	3.5	1.2	0.2	0.1

Identify the type of conditioning that was evident in Ching’s study and provide two reasons for your answer.

Chapter 8: Answer Guide

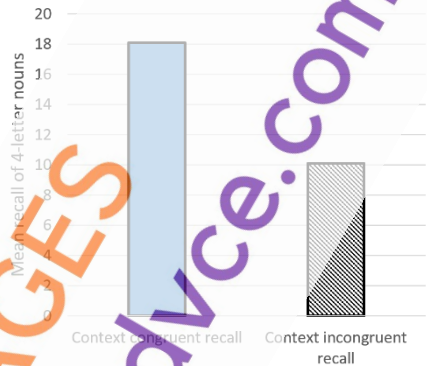
The demand for sleep

- 1 B Sleep is an altered state of consciousness and mostly occurs without the use of an aid, and is therefore naturally occurring.
- 2 B Electro-oculography (EOG) detects, amplifies, and records the electrical activity of the muscles that move the eyes.
- 3 D The EEG, EMG and EOG all collect quantitative data about physiological processes.
- 4 A During REM sleep, generally there is no movement; however, occasional twitching can occur.
- 5 D The EMG would detect, amplify, and record the lowest level of electrical activity during REM sleep because at this stage the skeletal muscles make very few (if any) movements.
- 6 B The hypothalamus houses the suprachiasmatic nucleus (SCN) which is responsible for the increased production of melatonin (in the pineal gland; inducing drowsiness) when there is a lack of light hitting the retinas.
- 7 D A circadian rhythm is a biological cycle that lasts for approximately 24 hours, such as the sleep-wake cycle.
- 8 D An EEG is a device that detects, amplifies, and records the electrical activity of the brain, where electrodes are attached to the scalp. It does not measure movements of the body – an EMG or video monitoring can measure this.
- 9 C An EOG and EMG collect quantitative data, whereas video monitoring can provide qualitative (non-numerical) data. For example, a video could show if Andrew was prone to sleepwalking.
- 10 A The relatively higher amount of REM sleep that infants receive (approximately 50% of their sleep time) appears to indicate that REM sleep plays an important role in brain development.
- 11 B Infants require the greatest amount of sleep per day, and this decreases as age progresses.
- 12 C An elderly person over 90 years old will reduce the number of total hours asleep, meaning that the proportion of REM sleep may increase relative to the total hours of sleep they have.
- 13 B The proportion (or ratio) of NREM sleep to REM sleep increases as we age. In infants, NREM only accounts for 50% of their sleep, whereas NREM accounts for approximately 80% of an adult's sleep. The amount of sleep decreases as we age.
- 14 C Vivid dreams, including nightmares, are experiences that occur during REM sleep. As the night progresses, REM sleep becomes more frequent.
- 15 C Peter is still a young child and requires more sleep (10-12 hours) than his adolescent sister, who requires 9-10 hours of sleep.
- 16 A Peter spends more time in REM sleep, as he sleeps for longer than Sharon and Laura do, and a greater proportion of a child's sleep is spent in REM compared to an adolescent or adult sleep pattern.
- 17 B The elderly sleep fewer hours compared to younger age groups.
- 18 A Children receive more hours of sleep per night, and have more deep sleep, compared to the elderly.
- 19 A A newborn baby tends to sleep between 16 and 17 hours a night and around 50% of this time is spent in REM compared to an adult sleeping pattern that typically lasts for 8 hours a night and around 20% REM sleep.
- 20 B Abhishek as a newborn will have around 50% of his sleep in NREM, while Thanuri as an adult will spend approximately 80% of time in NREM.

Question 201 (2 marks) One mark for each of the following points:

- *The independent variable is the congruence (or consistency) of context cues (either both learning and recalling words in the library, or learning words in the library and recalling them in the gym).*
- *The dependent variable is memory (measured by the amount of correctly [and freely] recalled four-letter nouns).*

Question 202 (2 marks) One mark for a correctly labelled x and y axis (with the independent variable on the horizontal axis and dependent variable on the vertical axis), and one mark for correctly representing the means on a bar chart. As the two conditions were discrete, a bar chart is most appropriate, as per the graph on the right.



Question 203 (1 mark) One mark for the following point:

- *The relatively small standard deviations indicate that the results are highly precise, as the results did not vary much within each condition.*

Question 204 (2 marks) One mark for each of the following points:

- *Ms Muffet used a within-subjects design (as the same participants were used in both conditions).*
- *This would have controlled for participant variables (individual participant differences) affecting the outcome of the experiment.*

Question 205 (2 marks) Two marks for the following point, or any other relevant confounding variable which clearly confounds the results (making it impossible to know if it was the confounding variable or the independent variable making a change to the dependent variable). Individual participant differences are not accepted, as a repeated measures design was used. Note that also a practice/order effect is unlikely, as Ms Muffet did her second condition a week after the first, and a decrease in performance was found.

- *The time delay between learning words in the library and walking to the gym to recall the words may have confounded the results, as it is uncertain as to whether the context or the time delay led to a reduction in word recall in the second condition.*

Question 206 (1 mark) One mark for the following point:

- *The test data would be considered to be quantitative (numerical).*

Question 207 (1 mark) One mark for the following point:

- *The independent variable is the amount of mushrooms consumed [as defined as habitually eating more than two portions of mushrooms per week (a 'mushroom eater') or habitually eating less than two portions of mushrooms per week (a 'non mushroom eater')].*

Question 208 (2 marks) One mark for each of the following points:

- *This is a correlational study...*
- *...as there was no systematic manipulation of an independent variable (i.e., a certain quantity of mushrooms was not deliberately fed to the groups – only their mushroom eating habits were investigated), but rather the recording of mushroom eating habits to understand their relationship with performance on cognitive tasks.*

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