

Please write clearly in block capitals.

Centre number

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Candidate number

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Surname *StemUp Model Solution*

Forename(s)

Candidate signature

I declare this is my own work.

INTERNATIONAL A-LEVEL PSYCHOLOGY

Unit 3 Advanced Topics and Research Methods 2

Time allowed: 1 hour 30 minutes

Materials

For this paper you must have:

- a calculator, which you are expected to use where appropriate.

Instructions

- Use black ink or black ball-point pen.
- Fill in the boxes at the top of this page.
- Answer **all** questions.
- You must answer the questions in the spaces provided. Do not write outside the box around each page or on blank pages.
- All working must be shown.
- If you need extra space for your answer(s), use the lined pages at the end of this book. Write the question number against your answer(s).
- Do all rough work in this book. Cross through any work you do not want to be marked.

Information

- The marks for questions are shown in brackets.
- The maximum mark for this paper is 90.

For Examiner's Use	
Section	Mark
A	
B	
C	
TOTAL	



Section A: Psychology of SleepAnswer **all** questions in the spaces provided.**0 1**Briefly describe **two** characteristics of REM sleep.**[4 marks]**

Rapid eye movement: REM sleep is characterised by the eyes moving rapidly from side to side, seen as the eyeballs moving quickly under closed eyelids. When woken from this stage about 80% of people report vivid dreams.

Paradoxical sleep: the brain is highly aroused, with fast EEG activity like being awake, yet the body is largely unresponsive because the body muscles lose tone and movement is limited.

0 2

Sara has found it difficult to fall asleep each night for the last six months. She regularly wakes up throughout the night. Sara is now having difficulty carrying out her work because she is extremely tired during the day.

Briefly outline **two** symptoms of insomnia. Refer to Sara in your answer.**[4 marks]**

Sleep onset latency: people with insomnia take a long time to fall asleep. Sara has this symptom because she has found it difficult to fall asleep every night for the last six months, so it is chronic insomnia.

Increased night-time awakenings and daytime tiredness: insomnia involves waking frequently during the night, as Sara regularly does, and the lack of sleep causes daytime fatigue that affects normal functioning. Sara is extremely tired during the day and is having difficulty carrying out her work.



0 3

What are exogenous zeitgebers?

[2 marks]

Exogenous zeitgebers are external, environmental cues (stimuli) that control, synchronise and reset biological rhythms, such as light, temperature and social cues like meal times.

0 4

Discuss **at least one** restoration theory of sleep.

[20 marks]

Restoration theories propose that sleep allows the body and brain to recover from the wear and tear of waking activity, so the physiological states during sleep reflect a time of repair. Oswald (1969, 1980) argued that REM sleep restores the brain, while NREM (slow-wave) sleep restores the body. During slow-wave sleep growth hormone is released, which stimulates protein synthesis and cell repair, and during REM sleep aspects of brain metabolism are restored, eg brain chemicals (neurotransmitters) are synthesised and new synaptic connections are formed, supporting brain development.

Horne's restoration theory distinguishes between core sleep and optional sleep. Core sleep, which is deep NREM (stage 4) sleep and REM sleep, is essential for restoring the brain. Light NREM sleep is optional sleep, which is not needed and mainly fills time. Horne argued that the body can be restored during relaxed wakefulness, as protein synthesis needs a steady supply of amino acids that are only available for a few hours after eating, so most body repair happens during the day.

The theories are consistent with the high levels of REM sleep in newborn babies, who spend about 50% of sleep in REM compared with about 20% in adults. Since infants' brains are developing rapidly, this

Turn over ►



supports the idea that REM sleep is linked to brain growth and the formation of new synaptic connections.

Case studies of sleep deprivation support restoration of the brain. Peter Tripp (1959) stayed awake for 201 hours and experienced hallucinations and paranoia, and Randy Gardner (1964) stayed awake for 11 days and showed slurred speech, memory lapses and mild hallucinations, showing mental disturbances when the brain cannot recover. However, Gardner recovered after sleeping 14 hours and recovered only a fraction of lost sleep, mostly stage 4 and REM, supporting Horne's idea that only core sleep is needed. Case studies lack population validity, and both had many uncontrolled variables.

REM rebound also supports the crucial role of REM sleep: when people are deprived of REM sleep they spend much more time in REM on the following nights, suggesting the brain must make up for this.

Rechtschaffen et al. (1983) found rats deprived of sleep died within about 33 days, suggesting sleep is essential for survival, although animal findings may not generalise to humans and the stress of the procedure may have caused death, a confounding variable.

Fatal familial insomnia, a rare inherited condition where people stop sleeping in middle age and usually die within 2 years, also supports the idea that sleep is vital for restoration. However, the deaths may be caused by the brain damage that produces the condition rather than lack of sleep itself.

Findings on exercise are contradictory. If sleep restores the body, more activity should lead to more sleep. Shapiro et al. (1981) found runners slept about 90 minutes longer after an ultramarathon, with more slow-wave sleep, which supports the theory. However, Horne and Minard



(1985) found that people given exhausting tasks fell asleep faster but did not sleep for longer, so vigorous exercise does not always lead to longer sleep. This supports Horne rather than Oswald, as the body may be restored when relaxed and awake.

Methodologically, much of the supporting research uses sleep laboratories with EEG recordings, which are objective and controlled, giving high reliability, but sleeping wired up in an unfamiliar laboratory lacks ecological validity and may disturb normal sleep patterns. Studies are also correlational, as growth hormone release during slow-wave sleep does not prove that sleep exists in order to repair the body.

Restoration theory struggles to explain species differences: sloths sleep about 20 hours a day despite being inactive, which is better explained by evolutionary theory (Meddis), which argues sleep keeps animals safe and conserves energy. Memory consolidation theory also suggests that REM sleep processes and stores memories rather than simply repairing the brain. The theories are reductionist, focusing on physiology, but complementary: an interactionist view combining restoration, evolutionary and memory explanations best accounts for why we sleep.

Extra space



Section B: Schizophrenia

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

0	5
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Briefly describe how neural correlates can be used to explain schizophrenia.

[4 marks]

Neural correlates are brain structures and functions that correlate with the severity of symptoms. CT scans show enlarged ventricles in people with schizophrenia, which is linked to negative symptoms such as avolition. MRI scans show damage to the prefrontal cortex, which may explain the inability to organise thoughts. Reduced dopamine in the frontal area may cause negative symptoms, while increased dopamine in other areas causes positive symptoms.

0	6	.	1
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Explain **one** strength of using anti-psychotic drugs as a therapy for schizophrenia.

[3 marks]

There is evidence that anti-psychotics are effective. Thornley et al. (2003) reviewed studies comparing chlorpromazine with a placebo and found it was associated with better overall functioning and reduced symptom severity. Typical anti-psychotics are particularly effective at treating positive symptoms such as hallucinations and delusions, so people can be treated in the community rather than being hospitalised.



0 6 . 2

Explain **one** limitation of using anti-psychotic drugs as a therapy for schizophrenia.**[3 marks]**

Typical anti-psychotics cause side effects such as weight gain, confusion and tardive dyskinesia (involuntary movements), which leads to high attrition rates as people stop taking them. Also, the drugs only reduce symptoms rather than curing the disorder, so they usually have to be taken for life and people must cope with the side effects long term, increasing the risk of relapse.

0 7

Discuss issues of reliability **and** validity in the diagnosis of schizophrenia.**[20 marks]**

Reliability refers to the consistency of a diagnosis. It can be measured through test-retest reliability, when a clinician makes the same diagnosis on separate occasions from the same information, and inter-rater reliability, when different clinicians make the same diagnosis of the same person. Validity refers to the accuracy of a diagnosis, the extent to which schizophrenia is a real, distinct disorder that the classification system correctly identifies. Measures include predictive validity (whether the diagnosis predicts the outcome and response to treatment), descriptive validity (whether people diagnosed differ from those with other disorders) and aetiological validity (whether people share the same cause). Reliability is an essential prerequisite for validity: if a diagnosis is not reliable, it cannot be valid.

Diagnosis uses classification systems, the DSM and the ICD, whose criteria change as they are updated, which affects both reliability and validity. Inter-rater reliability has improved with each edition. Beck et al. (1962) found only a 54% concordance rate between two psychiatrists

Turn over ►

diagnosing 154 patients, whereas Soderberg et al. (2005) found a concordance rate of 81% using DSM-IV-TR, and Jakobsen et al. (2005) found 98% agreement using ICD-10 with 100 Danish patients. This suggests reliability is now good.

However, there is contradictory evidence. Read et al. (2004) found test-retest reliability of a schizophrenia diagnosis as low as 37%.

Cheniaux et al. (2008) had two psychiatrists diagnose the same 100 patients; one diagnosed 26 with schizophrenia using ICD and the other only 13, showing poor inter-rater reliability. More people were diagnosed using ICD than DSM, suggesting schizophrenia may be over-diagnosed or under-diagnosed depending on the system used, which threatens validity. Rosenhan (1973) found that eight pseudo-patients who claimed to hear voices saying 'empty', 'hollow' and 'thud' were all admitted to psychiatric hospitals and seven were diagnosed with schizophrenia, then behaved normally but stayed for an average of 19 days. In a follow-up, staff told to expect pseudo-patients wrongly identified 41 genuine patients as fakes. This suggests psychiatrists cannot distinguish the sane from the insane, so diagnosis lacks validity. However, the study used DSM-II, which is now outdated, and deceived staff, raising ethical issues.

Symptom overlap is a threat to validity, as symptoms of schizophrenia such as delusions and avolition also occur in bipolar disorder and depression, so people may be misdiagnosed. People diagnosed with schizophrenia can also differ greatly on symptoms, since only two symptoms are needed, so two patients may share no symptoms, suggesting a single label is not valid. Co-morbidity is also common: Buckley et al. (2009) found depression in about 50% and substance abuse in about 47% of people with schizophrenia, which questions



whether schizophrenia is a distinct disorder and threatens descriptive validity.

Cultural bias also reduces reliability and validity. Copeland (1971) gave American and British psychiatrists the same description of a patient: 69% of the Americans diagnosed schizophrenia but only 2% of the British did. African-Caribbean people in the UK are far more likely to be diagnosed than white people, possibly because hearing voices is acceptable in some cultures and is misinterpreted by white psychiatrists. Gender bias is also an issue: Loring and Powell (1988) found psychiatrists were more likely to diagnose schizophrenia when a case was described as male (56%) than female (20%).

There is some support for predictive validity: Hollis (2000) found that a diagnosis of schizophrenia in children was the most stable over time of the psychotic disorders, suggesting it does predict the outcome. However, outcomes vary greatly, as about a third recover fully, so the predictive validity of the label is limited.

Overall, reliability has improved with newer classification systems, but validity remains questionable because of symptom overlap, co-morbidity and cultural and gender bias. Some argue for a spectrum or

Extra space

symptom-based approach rather than one category, and misdiagnosis matters because the label can lead to stigma and inappropriate treatment such as unnecessary anti-psychotic drugs.



Section C: Research Methods 2

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

Only **one** answer per question is allowed.

For each question completely fill in the circle alongside the appropriate answer.

CORRECT METHOD



WRONG METHODS



If you want to change your answer you must cross out your original answer as shown.



If you wish to return to an answer previously crossed out, ring the answer you now wish to select as shown.



Previous research has found that more boys ask questions in lessons than girls. A researcher investigated this further. He carried out a covert observation of a psychology lesson. The lesson was recorded on video.

The researcher analysed the recording by counting the number of girls who asked at least one question during the lesson and the number of boys who asked at least one question during the lesson.

The results of the observation are shown in **Table 1** below.

Table 1 – Number of girls and boys who asked at least one question during the psychology lesson

	Asked at least one question	Did not ask at least one question
Girls	3	9
Boys	7	5



0 8

What might the researcher conclude from the results in **Table 1**? Use data from the table to justify your answer.

[4 marks]

The researcher might conclude that more boys ask questions in psychology lessons than girls, which supports previous research.

Out of 12 boys, 7 (over 50%, about 58%) asked at least one question, whereas only 3 of the 12 girls (25%) asked at least one question. Also, 9 of the 12 girls (75%) did not ask a question compared with only 5 boys, so boys were more than twice as likely to ask a question.

0 9

Should the hypothesis for this study be directional or non-directional? Explain your answer.

[2 marks]

Directional, because previous research has found that more boys ask questions in lessons than girls, so the researcher can predict which group (boys) will ask more questions.

1 0

What types of data were collected in this study?

Shade **two** boxes.

[2 marks]

- | | |
|-----------------------------|-------------------------------------|
| A Meta-analysis data | ☐ |
| B Primary data | ☒ |
| C Qualitative data | ☐ |
| D Quantitative data | ☒ |
| E Secondary data | ☐ |

Turn over ►



1 1

With reference to this study, explain what is meant by covert observation.

[2 marks]

The girls and boys in the psychology lesson were unaware that research was taking place and that their asking a question behaviour was being observed, as the lesson was video recorded without their knowledge.

1 2

Briefly explain why this study is a non-participant observation.

[1 mark]

The researcher was not involved in the lesson; he only watched the video recording.

1 3

Explain why it was important to observe the girls and boys in the same lesson.

[4 marks]

Observing the girls and boys at the same time in the same lesson controls possible extraneous variables, such as the teacher, the topic, the subject and the time of day.

If the girls and boys had been observed in different lessons, eg at a different time of day or with a different teacher, any difference in asking questions could be due to these extraneous variables. Because these were kept constant, any difference found can be more confidently attributed to gender, increasing internal validity.

1 4 . 1

Name **two** ethical issues that the researcher should have considered in this study.

[2 marks]

Informed consent (deception)

Right to withdraw



1 4 . 2

Explain how the researcher could deal with the **two** ethical issues that you have named in your answer to Question **14.1**.

[4 marks]

Informed consent: as the observation was covert, consent could not be obtained beforehand, so the researcher could ask the head teacher for consent and gain retrospective consent by fully debriefing all the boys and girls (and their parents) after the lesson, explaining the aim and why the video was needed.

Right to withdraw: at the end of the study, as part of the debrief, the boys and girls would be told they can withdraw their data and the video recording, which would then be destroyed and not published, if they did not wish to be involved.

Table 1 – Number of girls and boys who asked at least one question during the psychology lesson

	Asked at least one question	Did not ask at least one question
Girls	3	9
Boys	7	5

1 5 . 1

The researcher carried out a Chi-squared statistical test on the data in **Table 1**.

Explain why a Chi-squared test is appropriate for the data in this study.

[3 marks]

It is an independent groups design, as there are two separate groups, girls and boys. The data is nominal (categorical), as each student is counted into a category: asked or did not ask a question. The researcher is looking for an association between gender and questioning behaviour (a difference between girls and boys).

Turn over ►



1 5 . 2

The researcher found the calculated value of Chi-squared (χ^2) was 2.74.

Table 2 – Critical values table for the Chi-squared statistical test

	0.10	0.05	0.01	0.005
df = 1	1.64	2.71	5.02	6.64

(The calculated value of χ^2 must be equal to or greater than the critical value to be significant.)

Using the critical values table for the Chi-squared test (**Table 2** above) and the probability level of 5%, decide whether the result is significant or not.

Justify your decision.

[4 marks]

The result is significant.

The critical (table) value for χ^2 at $p = 0.05$ (5%) with $df = 1$ is 2.71.

The calculated value of $\chi^2 = 2.74$ is greater than the critical value of

2.71, so the result is significant at the 5% level. Therefore the null

hypothesis can be rejected and the alternative hypothesis accepted: boys

are more likely to ask questions than girls. (It is not significant at $p =$

0.01, where the critical value is 5.02.)



1 6

After the observation, the researcher interviewed all of the girls who had been in the psychology lesson that was videoed. He was interested in why many of the girls did not ask questions in the lesson.

Write **one** closed question and **one** open question that the researcher could use in the interview.

[2 marks]

Closed question Did you ask a question in the psychology lesson today?

(tick one) Yes / No

Open question Tell me why you did not ask a question in the psychology lesson today.

Do not write
outside the
box

30

END OF QUESTIONS



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ANSWER IN THE SPACES PROVIDED**



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