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I declare this is my own work.

INTERNATIONAL A-LEVEL PSYCHOLOGY

Unit 3 Advanced Topics and Research Methods 2

Wednesday 19 January 2022 07:00 GMT 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	



J A N 2 2 P S 0 3 0 1

Section A: Psychology of Sleep

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

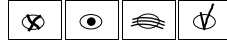
Only **one** answer per question is allowed.

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.



0 1

Which of the following is an ultradian rhythm?

Shade **one** box.

[1 mark]

A Cycle of seasonal depression



B Menstrual cycle



C Sleep/wake cycle



D Stages of sleep cycle



0 2

Describe **two** symptoms of narcolepsy.

[4 marks]

Cataplexy: a sudden and unpredictable loss of muscle tone while the person is awake, which leads to the sufferer collapsing; it is often triggered by strong emotional arousal such as laughing or anger.

Sleep paralysis: the person is unable to move or speak even though they are conscious; this is most likely to occur when waking up or just before falling asleep, and can be accompanied by a dreamlike state while awake (hypnagogic hallucinations).



0 3Briefly outline **two** effects of shift work on biological rhythms.**[2 marks]**

- 1. Desynchronisation of the endogenous pacemakers (internal body clocks) with exogenous zeitgebers (environmental cues such as light).*
- 2. Sleep deprivation and fatigue due to interrupted sleep during the day.*

0 4Explain **one** difference between non-REM sleep and REM sleep.**[3 marks]**

Non-REM sleep gives a synchronised EEG pattern, as its four distinct stages are characterised by regular patterns of electrical activity in the brain, eg slow, high amplitude delta waves in stages 3 and 4. In contrast, REM sleep gives a desynchronised EEG pattern, with fast, irregular electrical activity similar to being awake, and it has no distinct stages.

0 5

Describe and evaluate evolutionary explanations for the function of sleep.

[20 marks]

Evolutionary explanations propose that sleep is an adaptive behaviour which evolved because it provides a selective advantage, aiding the survival of the individual and so increasing its chance of reproducing.

Webb's hibernation theory proposes that sleep serves a similar purpose to hibernation: sleep helps to conserve energy, as when inactive an animal needs to expend less energy. Sleep also keeps animals out of harm's way: the risk of injury when awake and moving about in the dark is generally higher, so sleeping when foraging is inefficient helps animals to stay alive.

Herbivores eat nutrient-poor vegetation, so they need to eat more to satisfy their energy requirements; as a consequence they spend more

Turn over ►

time foraging and less time asleep. Carnivores eat nutrient-rich meat, so they do not need to eat as much and can afford to sleep more.

Predator status is also important: predators can sleep for longer as they face no risk of predation. Meddis argued that some prey animals sleep for a long time because they sleep in a relatively safe place, such as a burrow, which increases their survival chance as the risk of predation is low. Other prey animals, such as grazing animals in open fields, sleep for only short periods, increasing their survival chance as the risk of predation is high.

There is supporting evidence. Capellini et al. (2008) compared sleep in many mammal species and found that species with a higher metabolic rate slept for longer, supporting energy conservation, and that species at greater risk of predation slept less. Lesku et al. (2006) found that animals with a high predation risk slept less, especially in REM sleep, during which they are least responsive. Berger and Phillips (1995) showed that sleep deprivation in animals led to increased energy expenditure, again supporting the idea that sleep conserves energy. Zepelin and Rechtschaffen (1974) found that smaller animals with higher metabolic rates sleep more.

There is also support for the view that sleep has an adaptive function from unilateral sleep. Mukhametov (1987) found that bottlenose dolphins sleep with one half of the brain at a time, and migratory birds can do the same while flying. This suggests that sleep patterns have evolved as a means of solving the evolutionary pressures faced by these animals: they gain the benefits of sleep while staying alert to predators and continuing to surface for air or fly. Lima and Rattenborg (2007) found that ducks at the edge of a row kept one eye open, facing away from



the group.

However, there is contradictory evidence. Allison and Cicchetti (1976) found that some predicted relationships were not consistent across species: for example, larger animals, which should sleep less, do not always do so, and some prey species sleep more than expected. Shapiro et al. (1981) found that ultramarathon runners slept for around an hour and a half longer on two nights after a race, which suggests that sleep has a restorative function rather than simply conserving energy or keeping animals safe.

The theory is also oversimplistic, as it fails to explain the function of the different stages of sleep, REM and NREM, which restoration theories can explain. It also cannot explain why there is such a strong need to sleep after sleep deprivation: if sleep were only a way of keeping out of danger, an animal should be able to stay awake safely without harmful consequences, yet sleep deprivation in rats led to death after a few weeks.

The explanation is also retrospective: it may have been relevant in our evolutionary past, but it is not true of human sleep today, so it is difficult to test and cannot be falsified.

There are also issues with the research. Much of it uses non-human animals, so findings may not generalise to humans, who are able to adjust their sleep voluntarily. Comparative studies are correlational, so we cannot establish cause and effect between factors such as diet or predation risk and sleep duration.

Overall, there is evidence that sleep patterns are shaped by evolutionary pressures such as predation and diet, but they cannot fully explain why sleep exists.

Turn over ►



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Section B: SchizophreniaAnswer **all** questions in the spaces provided.**0 6**

Lizzie has schizophrenia. She hears voices in her head which she finds distracting. Lizzie does not make any effort to see her friends. When talking to other people, she will often reply using single words or does not respond at all. Lizzie also suffers from depression.

0 6 . 1

Identify **one** positive symptom and **one** negative symptom of schizophrenia shown by Lizzie.

[2 marks]

Positive symptom Auditory hallucinations

Negative symptom Speech poverty

0 6 . 2

Briefly outline the negative symptom of schizophrenia you identified in your answer to Question 6.1.

[1 mark]

Speech poverty is a lack of fluent speech, with brief replies to questions and rarely engaging in spontaneous speech.

0 6 . 3

Outline what is meant by co-morbidity in the diagnosis of schizophrenia. Refer to Lizzie in your answer.

[3 marks]

Co-morbidity is when schizophrenia and at least one other disorder co-exist in the same person, ie one or more additional disorders occur simultaneously with schizophrenia. Co-morbidity can be seen in Lizzie as she suffers from both schizophrenia and depression at the same time.

Turn over ►

0 7

Explain how symptom overlap may reduce the validity of the diagnosis of schizophrenia.

[3 marks]

Some symptoms of schizophrenia are the same as symptoms of other mental illnesses, such as bipolar disorder, making it difficult to distinguish whether a specific symptom is attributable to schizophrenia or to another mental illness. A practitioner may therefore attribute a symptom to schizophrenia when it should have been attributed to another illness, and so make an invalid diagnosis of schizophrenia.

0 8

Describe and evaluate anti-psychotic drugs as a therapy for schizophrenia.

[9 marks]

Typical antipsychotics, such as chlorpromazine and haloperidol, act as dopamine antagonists: they block dopamine (D2) receptors at the synapse and so decrease dopamine activity, particularly in the mesolimbic pathway. This reduces positive symptoms such as hallucinations and delusions. Atypical antipsychotics are used with patients who do not respond to typical antipsychotics, and they also address negative symptoms. Clozapine acts on dopamine, serotonin and glutamate; risperidone binds to both dopamine and serotonin receptors; and aripiprazole acts as a partial dopamine antagonist, which helps to even out dopamine levels.

There is evidence for their effectiveness. Thornley et al. (2003) reviewed studies comparing chlorpromazine with a placebo and found that it was associated with better overall functioning and reduced symptom severity, and that relapse was lower in patients taking the drug. Meltzer (1999) concluded that clozapine is more effective than typical antipsychotics in 30 to 50% of cases where typical drugs fail. However, side effects are a major problem and can cause high attrition



rates: typical antipsychotics can cause confusion, weight gain and involuntary movements (tardive dyskinesia), and clozapine can cause agranulocytosis, so blood must be monitored. Typical antipsychotics have little or no effect on negative symptoms, and not all patients respond to antipsychotic drugs. They also do not offer a cure: they must be taken regularly even when symptoms are not being experienced, and relapse is common when they are stopped.

Extra space On the other hand, drugs are accessible, as many can be taken in a variety of forms, eg tablets or depot injections, and typical antipsychotics are relatively cheap, although some of the newer atypical drugs are very expensive. There are ethical issues, as drugs have been described as a chemical straitjacket used to control patients, especially those detained without consent. Drug therapy is also reductionist, as it treats schizophrenia as a purely biological problem; compared with cognitive behavioural therapy it treats symptoms rather than causes, so it is often most effective when combined with psychological therapies.

Turn over for the next question

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0 9

Discuss cognitive explanations for schizophrenia.

[12 marks]

Cognitive explanations propose that schizophrenia is the result of dysfunctional information processing, where people with schizophrenia do not process information correctly. They have different perceptions and ways of interpreting mental experiences, eg hearing voices is perceived as someone trying to talk to them, instead of the more realistic perception that it is their own inner voice (Beck and Rector, 2005).

Frith et al. (1992) proposed that dysfunctional metarepresentation, the ability to reflect on our own thoughts and recognise them as our own, underlies positive symptoms such as hallucinations and delusions of control, as the person cannot tell their own thoughts from those of others. Dysfunctional central control, the ability to suppress automatic responses, leads to disorganised speech and thought disorder, as associated ideas intrude. There are also perception deficits when interpreting facial expressions, leading to misperception of others' intent, memory deficits, where poor perceptual processing leads to poor encoding of material into working memory, and reasoning deficits such as jumping to conclusions, an extreme attribution bias and a lack of theory of mind. Language deficits in language output and comprehension can explain speech poverty.

There is research support. Stirling et al. (2006) found that people with schizophrenia took over twice as long as controls to name the ink colours of colour words on the Stroop task, supporting the idea of dysfunctional central control. Bentall et al. (1991) found that people with schizophrenia were poorer at identifying words they had generated themselves, supporting a deficit in metarepresentation. Bowie and Harvey



(2006) and Shin et al. (2008) also found cognitive deficits in attention, memory and executive function.

However, much of this evidence is correlational, so we cannot be sure whether cognitive deficits cause schizophrenia or whether having schizophrenia causes the cognitive deficits. Against this, O'Carroll (2000)

Extra space found that dysfunctional thinking occurs before the onset of schizophrenia, suggesting that it cannot simply be an effect of the disorder.

A strength is that knowledge of dysfunctional thought processing has formed the basis of effective treatment, such as cognitive behavioural therapy, which helps patients to challenge delusional beliefs. Cognitive theories also point to the importance of attributional and reasoning biases, which may contribute to the maintenance of delusions, and they can account for both positive and negative symptoms.

However, cognitive theories only explain the proximal origins of symptoms: they cannot explain what led to the cognitive dysfunction in the first place, so they cannot explain the cause of schizophrenia.

Cognitive explanations are not incompatible with an underlying biological cause, such as abnormal dopamine or brain structure, so a diathesis-stress or interactionist approach may be better. The explanation is also reductionist, as it reduces a complex disorder to a set of simple deficits.

Overall, cognitive explanations describe the thinking associated with schizophrenia well and have useful applications, but they cannot fully explain its origins.



Section C: Research Methods 2

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

A researcher investigated whether males or females were more likely to conform with the majority. The researcher used a sample of eight male and eight female participants. They were not told the true purpose of the study.

Each participant was tested one at a time in a group with nine confederates (friends of the researcher). The researcher read out a series of 10 clearly incorrect statements to the group. Each person was asked to raise his or her hand if he or she believed each statement was correct. The confederates had been told beforehand to raise their hand for each statement.

The researcher recorded how many times each participant raised his or her hand.

1	0
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Identify the independent variable and the dependent variable in this study.

[2 marks]

Independent variable Gender, ie whether the participant was male or female.

Dependent variable The number of times each participant raised his or her hand.

1	1
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Write a suitable hypothesis for this study.

[3 marks]

There will be a significant difference in the number of times male and female participants raise their hand to agree with the 10 clearly incorrect statements, ie conform with the majority of the nine confederates.



1 2

Explain why the data collected in this study was primary data.

[2 marks]

The researcher collected the number of times each participant raised his or her hand directly from the participants first hand, for the specific purpose of investigating whether males or females were more likely to conform with the majority.

1 3

Identify the experimental design used in this study. Explain your answer.

[2 marks]

Independent groups. Each participant can only be male or female, so can only take part in one condition, either the male or the female condition.

1 4

Briefly explain **one** strength of the experimental design you identified in your answer to Question 13.

[2 marks]

There are no order effects, as participants only take part in one condition, so boredom, fatigue or practice cannot confound the results by causing a change in performance in a second condition.

1 5

Explain **one** way of assessing the reliability of this study.

[3 marks]

Inter-observer reliability: two observers could independently record the number of times each participant raised his or her hand and then compare their records, eg by correlating them. If they recorded a similar number of times (a strong positive correlation of +0.8 or above), the results would be reliable; if they recorded a different number of times, the results would be unreliable.

Turn over ►



1 6

The results for the female participants are shown in **Table 1**.

Referring to the information in **Table 1**, explain why the mean was **not** the most suitable measure of central tendency to use with this data.

[3 marks]**Table 1**

Participant	The number of times each female participant raised her hand
1	3
2	3
3	2
4	1
5	3
6	9
7	0
8	9
Mean	3.75

Participants 6 and 8 both raised their hand 9 times, which is very different from the other six participants, who raised it 0 to 3 times. These extreme values distort the mean to 3.75, which is higher than 6 of the 8 scores, making it unrepresentative. Also, 3.75 is not a real value, as each female either raised her hand or did not, so could not raise it on three quarters of an occasion.



1 7

Identify an appropriate statistical test which could be used to analyse the results of this investigation into whether males or females were more likely to conform. Explain **three** reasons why the test you have chosen would be suitable in this case.

[4 marks]

Mann-Whitney test.

1. The data should be treated as ordinal, as each occasion of conformity may not be equal, eg some statements may be more obviously incorrect than others; also Table 1 shows the data is not normally distributed.

2. The experimental design is independent groups, as different participants were male and female.

3. The researcher is looking for a difference between males and females in conformity.

1 8

The researcher found that the difference in the number of times males and females conformed was 'not significant at the 0.05 level of significance'. Explain what is meant by 'not significant at the 0.05 level of significance' in this study.

[3 marks]

The probability that the difference in the number of times males and females conformed occurred by chance is more than 5% ($p > 0.05$).

This means there is less than a 95% probability that there is an actual difference in the conformity rates of males and females, so the difference is not statistically large enough to reject the null hypothesis, which must be retained.

Turn over ►



1 9

Explain **one** reason why it was necessary for the researcher to deceive the participants in this study.

[3 marks]

Not telling participants that this was a study into conformity, and that the other people were confederates told what to do, was needed to ensure their behaviour was as natural as possible. If they knew, this could lead to demand characteristics: they might raise their hand on every occasion because they think this is what the researcher wants, or never raise it to sabotage the study, lowering validity.

2 0

The researcher used an experimental method in this study. Explain how the researcher could use a different research method to find out why some participants conformed more than others.

[3 marks]

The researcher could invite each participant from the original study to an interview and ask them open questions about why they did or did not raise their hand, eg 'Why did you agree with the group?'. They could then compare the responses of participants who conformed more with those who conformed less, eg using thematic analysis, to identify reasons why some participants conformed more than others.

30

END OF QUESTIONS



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