OXFORD

INTERNATIONAL
AQA EXAMINATIONS

INTERNATIONAL A-LEVEL

PSYCHOLOGY

PS03

Unit 3: Advanced Topics and Research Methods 2

Mark scheme

January 2022

Mark schemes are prepared by the Lead Assessment Writer and considered, together with the relevant questions, by a panel of subject teachers. This mark scheme includes any amendments made at the standardisation events which all associates participate in and is the scheme which was used by them in this examination. The standardisation process ensures that the mark scheme covers the students' responses to questions and that every associate understands and applies it in the same correct way. As preparation for standardisation each associate analyses a number of students' scripts. Alternative answers not already covered by the mark scheme are discussed and legislated for. If, after the standardisation process, associates encounter unusual answers which have not been raised they are required to refer these to the Lead Examiner.

It must be stressed that a mark scheme is a working document, in many cases further developed and expanded on the basis of students' reactions to a particular paper. Assumptions about future mark schemes on the basis of one year's document should be avoided; whilst the guiding principles of assessment remain constant, details will change, depending on the content of a particular examination paper.

Further copies of this mark scheme are available from oxfordaqaexams.org.uk

Level of response marking instructions

Level of response mark schemes are broken down into levels, each of which has a descriptor. The descriptor for the level shows the average performance for the level. There are marks in each level.

Before you apply the mark scheme to a student's answer read through the answer and annotate it (as instructed) to show the qualities that are being looked for. You can then apply the mark scheme.

Step 1 Determine a level

Start at the lowest level of the mark scheme and use it as a ladder to see whether the answer meets the descriptor for that level. The descriptor for the level indicates the different qualities that might be seen in the student's answer for that level. If it meets the lowest level then go to the next one and decide if it meets this level, and so on, until you have a match between the level descriptor and the answer. With practice and familiarity you will find that for better answers you will be able to quickly skip through the lower levels of the mark scheme.

When assigning a level you should look at the overall quality of the answer and not look to pick holes in small and specific parts of the answer where the student has not performed quite as well as the rest. If the answer covers different aspects of different levels of the mark scheme you should use a best fit approach for defining the level and then use the variability of the response to help decide the mark within the level, ie if the response is predominantly level 3 with a small amount of level 4 material it would be placed in level 3 but be awarded a mark near the top of the level because of the level 4 content.

Step 2 Determine a mark

Once you have assigned a level you need to decide on the mark. The descriptors on how to allocate marks can help with this. The exemplar materials used during standardisation will help. There will be an answer in the standardising materials which will correspond with each level of the mark scheme. This answer will have been awarded a mark by the Lead Examiner. You can compare the student's answer with the example to determine if it is the same standard, better or worse than the example. You can then use this to allocate a mark for the answer based on the Lead Examiner's mark on the example.

You may well need to read back through the answer as you apply the mark scheme to clarify points and assure yourself that the level and the mark are appropriate.

Indicative content in the mark scheme is provided as a guide for examiners. It is not intended to be exhaustive and you must credit other valid points. Students do not have to cover all of the points mentioned in the Indicative content to reach the highest level of the mark scheme.

An answer which contains nothing of relevance to the question must be awarded no marks.

Section A: Psychology of Sleep   **Total for this section: 30 marks**

Question	Marking guidance	Total marks
01	Which of the following is an ultradian rhythm? **A** Cycle of seasonal depression **B** Menstrual cycle **C** Sleep/wake cycle **D** Stages of sleep cycle **Answer** = **D** (Stages of sleep cycle)	**1** **AO1=1**
02	Describe **two** symptoms of narcolepsy**.** For each symptom award marks as follows: **2 marks** for a clear description with some elaboration. **1 mark** for a limited/vague/muddled description. **Possible content:** • Loss of muscle tone whilst awake which is sudden and unpredictable and leads to the sufferer collapsing; can be triggered by emotional arousal (cataplexy). • Dreamlike state whilst awake; most likely to occur when waking up or just before falling asleep (hypnagogic hallucinations). • Unable to move; most likely to occur when waking up or just before falling asleep (sleep paralysis). • Extreme daytime sleepiness with reoccurring short periods of sleep. Credit other relevant description.	**4** **AO1=4**
03	Briefly outline **two** effects of shift work on biological rhythms. Award **1 mark** for each correctly outlined effect. **Possible content:** • Desynchronisation of endogenous pacemakers/internal body clocks with exogenous zeitgebers/environmental cues. • Poor performance/attention/judgement/decision making of shift workers during night shifts (most noticeably between 2am and 4am). • Increased risk of cancer and heart disease. • Increased risk of depression. • Sleep deprivation and fatigue due to interruptions to sleep during the day. Credit other relevant effects.	**2** **AO1=2**
04	Explain **one** difference between non-REM sleep and REM sleep. **Possible content:** • Number of stages – there are four different and distinct stages of non-REM sleep whereas there are no different and distinct stages of REM sleep. • Pattern of electrical activity – the stages of non-REM sleep are generally characterised by regular patterns of electrical activity in the brain whereas REM sleep has no regular pattern of electrical activity in the brain.	**3** **AO3=3**

- EEG pattern – the stages of non-REM sleep give a synchronised EEG pattern whereas REM sleep gives a desynchronised EEG pattern.
- Muscle paralysis – major muscle paralysis/loss of body tone occurs in REM sleep but does not occur in non-REM sleep.
- Eye movement – REM sleep is characterised by rapid eye movement which is not found in non-REM sleep.
- Association with dreaming – REM sleep is associated with dreaming whereas non-REM sleep is not.
- Duration – adults spend a significantly longer proportion of time asleep in non-REM sleep (~75%) than in REM sleep

Credit other relevant differences.

Level	Descriptor	Marks
3	Explanation of one difference is detailed and appropriate. The answer is clear with appropriate use of terminology.	3
2	Explanation of one difference is relevant but detail is lacking. The answer lacks clarity in places.	2
1	Explanation of one difference is limited. The answer is vague/muddled.	1
0	No creditable content.	

05	Describe and evaluate evolutionary explanations for the function of sleep.	**20**
		AO1=8
		AO3=12

Possible description:
- Sleep provides a selective advantage to an individual to aid survival.
- Hibernation theory – Webb proposed sleep serves a similar purpose to hibernation eg sleep helps to conserve energy as when inactive we need to expend less energy.
- Diet – herbivores eat nutrient-poor vegetation so need to eat more to satisfy their energy requirements. As a consequence, they are likely to spend more time foraging and less time asleep. Carnivores eat nutrient-rich meat so they do not need to eat a lot and can afford to sleep more.
- Risk of injury – sleep can help animals stay alive, as the risk of injury when awake is generally higher.
- Predator status – predators can sleep longer due to no risk of predation.
- Predation risk – some prey animals sleep for a long period of time as they sleep in a relatively safe place, increasing their survival chance as the risk of predation is low. Other prey animals sleep for a short period of time as they sleep in a relatively unsafe place, increasing their survival chance as the risk of predation is high.

Credit other relevant description.

Possible evaluation:
- Use of supporting evidence for evolutionary theories of sleep eg Lesku et al (2006), Berger and Phillips (1995), Lima and Rattenborg (2007), Zeplin and Rechtchaffen (1974), Capellini et al (2008), Mukhametov (1987).

- Use of contradictory evidence for evolutionary theories of sleep eg Allison and Cicchetti (1976), Shapiro et al. (1981).
- Support that sleep has an adaptive function eg unilateral sleep has evolved in some marine mammals and migratory birds suggesting that the evolution of sleeping patterns is a means of solving evolutionary pressures faced by these animal groups.
- Oversimplistic as it fails to explain the function of REM and NREM sleep (which restoration theories can).
- Cannot explain why there is a strong need to sleep when sleep has been deprived.
- Retrospective – the theory is only relevant in our evolutionary past and is not true of human sleep today.
- Issues with research where linked back to evolutionary theories of sleep eg use of non-human animals in research, issues with cause and effect, issues with samples related to generalisability etc.

Credit other relevant evaluation.

Level	Descriptor	Marks
4	Knowledge of evolutionary explanations is mostly accurate and generally well detailed. Evaluation is mostly effective. Minor detail and/or expansion of argument is sometimes lacking. The answer is clear and focused. Specialist terminology is mostly used effectively.	16–20
3	Knowledge of evolutionary explanations is evident but there are occasional inaccuracies/omissions. There is some effective evaluation. The answer is mostly clear and organised but occasionally lacks focus. Specialist terminology is mostly used appropriately.	11–15
2	Limited knowledge of evolutionary explanations is present. Any evaluation is of limited effectiveness. The answer lacks clarity, accuracy and organisation in places. Specialist terminology is occasionally used appropriately. Or one explanation at Level 3/4.	6–10
1	Knowledge of evolutionary explanations is very limited. Evaluation is limited, poorly focused or absent. The answer as a whole lacks clarity, has many inaccuracies and is poorly organised. Specialist terminology is either absent or inappropriately used. Or one explanation at Level 2.	1–5
0	No creditable content.	

Section B: Schizophrenia   **Total for this section: 30 marks**

Question	Marking guidance	Total marks
06.1	Identify **one** positive symptom and **one** negative symptom of schizophrenia shown by Lizzie. For one positive symptom – **1 mark** for correctly identifying (auditory) hallucinations. For one negative symptom – **1 mark** for correctly identifying speech poverty or avolition.	**2** **AO2=2**
06.2	Briefly outline the negative symptom of schizophrenia you identified in your answer to Question **6.1**. **1 mark** for briefly outlining one negative symptom of schizophrenia. **Possible content:** • Speech poverty – infrequent speech/lack of fluent speech/brief replies to questions/rarely engaging in spontaneous speech. • Avolition – lack of goal-directed behaviour/inability to make decisions/reduced motivation/poor hygiene and grooming/social withdrawal.	**1** **AO1=1**
06.3	Outline what is meant by co-morbidity in the diagnosis of schizophrenia. Refer to Lizzie in your answer. **2 marks** for a clear outline of co-morbidity in the diagnosis of schizophrenia. **1 mark** for a limited/vague/muddled outline. **Possible content:** • The presence of one or more additional disorders simultaneously occurring with schizophrenia. • Schizophrenia and at least one other disorder co-exist in the same person. **PLUS** **1 mark** for referring to Lizzie eg comorbidity can be seen in Lizzie as she suffers from both schizophrenia and depression at the same time.	**3** **AO1=2** **AO2=1**
07	Explain how symptom overlap may reduce the validity of the diagnosis of schizophrenia. **Possible content:** • Some symptoms of schizophrenia are the same as symptoms of other mental illnesses making it difficult to distinguish whether a specific symptom is attributable to schizophrenia or attributable to another mental illness. • A practitioner may attribute a symptom to schizophrenia when it actually should have been attributed to another mental illness and therefore make an incorrect/invalid diagnosis of schizophrenia (or vice versa). Credit other relevant explanation.	**3** **AO3=3**

Level	Descriptor	Marks
3	Explanation is detailed and appropriate. The answer is clear with appropriate use of terminology.	3
2	Explanation is relevant but detail is lacking. The answer lacks clarity in places.	2
1	Explanation is limited. The answer is vague/muddled.	1
0	No creditable content.	

08	Describe and evaluate anti-psychotic drugs as a therapy for schizophrenia.	9

AO1=4
AO3=5

Possible description:
- Typical antipsychotics (eg chlorpromazine and haloperidol) act as dopamine antagonists which block dopamine receptors at the synapse and decrease dopamine activity. They reduce positive symptoms.
- Atypical antipsychotics are used with patients who do not respond to typical antipsychotics and also address negative symptoms. Clozapine acts on dopamine, serotonin and glutamate. Risperidone binds to both dopamine and serotonin receptors. Aripiprazole acts as a partial dopamine antagonist and helps to even out levels.

Credit other relevant description.

Possible evaluation:
- Side effects can cause high attrition rates eg typical antipsychotic drugs can cause confusion, weight gain, involuntary movement etc.
- Use of evidence for effectiveness of antipsychotic drugs eg Thornley (2003), Adams et al. (2005), Cole et al. (1964), Meltzer (1999), McGlashan et al. (2006).
- Typical antipsychotics have no/little effect on negative symptoms.
- Not all patients respond to antipsychotic drugs.
- Antipsychotic drugs do not offer a cure and must be taken regularly even when symptoms are not currently being experienced.
- Antipsychotic drugs are accessible for patients as many of them can be taken in a variety of forms.
- Typical antipsychotics are relatively cheap but some of the newer atypical drugs are very expensive.
- Ethical issues with the use of drugs to control patients.
- Comparison with other therapies.
- Broader issues such as reductionism where related to antipsychotic drug treatment.

Credit other relevant evaluation.

	Level	Descriptor	Marks
	3	Knowledge of antipsychotic drugs is mostly accurate and generally well detailed. Evaluation is mostly effective. The answer is clear and organised. Specialist terminology is mostly used effectively.	7–9
	2	Knowledge of antipsychotic drugs is evident but with some inaccuracies/omissions. Evaluation is evident but lacks effectiveness in places. The answer lacks clarity and organisation in places. Specialist terminology is mostly used appropriately.	4–6
	1	Knowledge of antipsychotic drugs is limited. Evaluation is limited, poorly focused or absent. The answer lacks clarity and is poorly organised. Specialist terminology is either absent or inappriopriately used.	1–3
	0	No creditable content.	

| 09 | Discuss cognitive explanations for schizophrenia.

Possible content:
• Schizophrenia is a result of dysfunctional information processing where schizophrenics do not process information correctly.
• Schizophrenics have different perceptions and ways of interpreting mental experiences eg hearing voices is perceived as someone trying to talk to them instead of a more realistic perception of it is my own inner voice (Beck and Rector, 2005).
• Dysfunctional metarepresentation and/or central control could underlie some symptoms (Frith et al., 1992).
• Perception deficits when interpreting facial expressions leading to misperception of intent.
• Memory deficits eg poor perceptual processing leads to poor encoding of material into working memory.
• Reasoning deficits eg the jumping to conclusions hypothesis, extreme attribution bias, lack of theory of mind etc.
• Language deficits in language output and/or language comprehension.

Credit other relevant description.

Possible discussion:
• Knowledge of dysfunctional thought processing in schizophrenia can form the basis of effective treatment.
• Cognitive theories point to the importance of attributional and reasoning biases, which may contribute to the maintenance of delusions in schizophrenia.
• Cognitive explanations can account for both positive and negative symptoms.
• Cognitive explanations are not incompatible with underlying biological cause.
• Use of evidence to support or refute the cognitive explanation eg Sterling (2006), O'Carroll (2000), Bowie and Harvey (2006), Betall et al (1991), Shin et al. (2008). | 12

AO1=6
AO3=6 |

- Much of the evidence is correlational so cannot be sure if cognitive deficits cause schizophrenia or if having schizophrenia causes cognitive deficits.
- Some research has found that dysfunctional thinking occurs before the onset of schizophrenia suggesting that dysfunctional thinking cannot be an effect of being schizophrenic (O'Carroll, 2000).
- Cognitive theories cannot explain what led to the cognitive dysfunction and thus cannot explain the cause of schizophrenia.
- Reductionist as they reduce a complex disorder to a set of simple deficits.

Credit other relevant evaluation.

Level	Descriptor	Marks
4	Knowledge of cognitive explanations for schizophrenia is mostly accurate and generally well detailed. Discussion is mostly effective. Minor detail and/or expansion of argument is sometimes lacking. The answer is clear and focused. Specialist terminology is mostly used effectively.	10–12
3	Knowledge of cognitive explanations for schizophrenia is evident but there are occasional inaccuracies/omissions. There is some effective discussion. The answer is mostly clear and organised but occasionally lacks focus. Specialist terminology is mostly used appropriately.	7–9
2	Limited knowledge of cognitive explanations for schizophrenia is present. Any discussion is of limited effectiveness. The answer lacks clarity, accuracy and organisation in places. Specialist terminology is occasionally used appropriately.	4–6
1	Knowledge of cognitive explanations for schizophrenia is very limited. Discussion is limited, poorly focused or absent. The answer as a whole lacks clarity, has many inaccuracies and is poorly organised. Specialist terminology is either absent or inappropriately used.	1–3
0	No creditable content.	

Section C: Research Methods 2   **Total for this section: 30 marks**

Question	Marking guidance	Total marks
10	Identify the independent variable and the dependent variable in this study.	**2**
	1 mark for correctly identifying the independent variable as gender/sex/whether male or female. **PLUS** **1 mark** for correctly identifying the dependent variable as the number of times each participant raised his or her hand.	**AO2=2**
11	Write a suitable hypothesis for this study.	**3**
	Possible content:	**AO2=3**
	• There is a (significant) difference in the number of times males and females raised their hand.	
	• Males will raise their hand more times than females.	
	• Females will raise their hand more times than males.	
	Credit null version.	
12	Explain why the data collected in this study was primary data.	**2**
	2 marks for a clear explanation. **1 mark** for a limited/vague/muddled explanation.	**AO2=2**
	Possible content:	
	• The researcher collected the number of times each participant raised his or her hand directly from the participants in their study (first hand).	
	• The researcher collected the number of times each participant raised his or her hand for the specific purpose of investigating whether males or females were more likely to conform with the majority.	
13	Identify the experimental design used in this study. Explain your answer.	**2**
	1 mark for correctly identifying independent groups. **PLUS**	**AO2=2**

For question 11, the level descriptor table:

Level	Descriptor	Marks
3	For an appropriate experimental hypothesis with both the independent and dependent variables operationalised.	3
2	For an appropriate experimental hypothesis that lacks clarity or where only either the independent or dependent variable is operationalised.	2
1	For a muddled experimental hypothesis.	1
0	No creditable content.	

		1 mark for an explanation eg each participant can only be male or female so can only take part in one condition either the male or female condition.	
14		Briefly explain **one** strength of the experimental design you identified in your answer to Question **13**. **2 marks** for a clear explanation. **1 mark** for a limited/vague/muddled explanation. **Possible strengths:** • No order effects as participants are only taking part in one condition so boredom, fatigue or practice cannot confound the results by causing a change in performance in the second condition. • Can save time as both conditions can be tested simultaneously. • Reduced investigator effects and demand characteristics as participants are involved in the experiment for a shorter period of time (only one condition). Credit other relevant strengths. Credit correct strengths for an incorrectly identified research design in Q13.	**2** **AO3=2**
15		Explain **one** way of assessing the reliability of this study. **Possible content:** • The study could be repeated with the same participants (test-retest/replication). • If the participants raised their hand a similar number of times, then the results would be reliable. • If the participants raised their hand a different number of times, then the results would be unreliable. **OR** • Two observers could independently record the number of times each participant raised his or her hand and then compare their records (inter-observer reliability). • If they recorded a similar number of times, then the results would be reliable. • If they recorded a different number of times, then the results would be unreliable.	**3** **AO2=3**

Level	Descriptor	Marks
3	Explanation of one way of assessing reliability is detailed and appropriate. The answer is clear with appropriate use of terminology.	3
2	Explanation of one way of assessing reliability is relevant but detail is lacking. The answer lacks clarity in places.	2
1	Explanation of one way of assessing reliability is limited. The answer is vague/muddled.	1
0	No creditable content.	

16	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. **Possible content:** • Extreme values will distort the mean number of times females conformed to 3.75 which is higher than 6 of the 8 scores making it unrepresentative. • Participant 6 and participant 8 both raised their hand 9 times which is different from the number of times the other 6 participants raised their hand and their scores will distort the mean. • The mean number of times females conformed (of 3.75) is not an actual/real value as each female either raised her hand or did not on each occasion and could not have raised her hand on three quarters of an occasion. <table><tr><th>Level</th><th>Descriptor</th><th>Marks</th></tr><tr><td>3</td><td>Explanation is detailed and appropriate. The answer is clear with appropriate use of terminology.</td><td>3</td></tr><tr><td>2</td><td>Explanation is relevant but detail is lacking. The answer lacks clarity in places.</td><td>2</td></tr><tr><td>1</td><td>Explanation is limited. The answer is vague/muddled.</td><td>1</td></tr><tr><td>0</td><td>No creditable content.</td><td></td></tr></table>	**3** **AO2=2** **AO3=1**
17	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. **1 mark** for naming an unrelated t-test or a Mann-Whitney test. **PLUS** **1 mark** for each reason as follows For unrelated t-test: • Can assume interval data if we assume each occasion of conformity is equal/one occasion of conformity is equivalent to any other occasion of conformity (ie each statement was equally incorrect). • The experimental design is independent groups. • The psychologist is looking for a difference between males and females. **OR** For Mann-Whitney test: • Data should be treated as ordinal because each occasion of conformity may not be equal/one occasion of conformity may not be equivalent to other occasions of conformity (ie some statements may be more obviously incorrect than others) OR treated as ordinal as table 1 shows that not all of the data is normally distributed. • The experimental design is independent groups. • The psychologist is looking for a difference between males and females.	**4** **AO2=4**
18	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'.	**3**

	Explain what is meant by 'not significant at the 0.05 level of significance' in this study.	**AO2=3**

Possible content:
- The probability of the difference between the conformity rates of males and females occurring by chance is more than 5%.
- There is less than a 95% probability that there is an actual difference between the conformity rates of males and females.
- The difference in the number of times males and females conformed with the majority is not statistically large enough to reject the null hypothesis.

Level	Descriptor	Marks
3	Explanation is detailed and appropriate. The answer is clear with appropriate use of terminology.	3
2	Explanation is relevant but detail is lacking. The answer lacks clarity in places.	2
1	Explanation is limited. The answer is vague/muddled.	1
0	No creditable content.	

19	Explain **one** reason why it was necessary for the researcher to deceive the participants in this study.	**3** **AO2=3**

Possible content:
- Not telling the participants that this was a study into conformity/that the other participants were confederates who have been told what to do, is needed to ensure that their behaviour is as natural as possible.
- If the participants knew this was a study into conformity/that the other participants were confederates who have been told what to do, this could lead to demand characteristics.
- Participants may raise their hand on every occasion as this is what they think the researcher wants or they may not raise their hand on any occasion to sabotage the research.

Credit any other possible reasons as long as they are correctly applied to this study.

Level	Descriptor	Marks
3	Explanation is detailed and appropriate. The answer is clear with appropriate use of terminology.	3
2	Explanation is relevant but detail is lacking. The answer lacks clarity in places.	2
1	Explanation is limited. The answer is vague/muddled.	1
0	No creditable content.	

20	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 AO2=3

Possible content:
* The researcher could send a questionnaire out to each participant from the original study and ask them an open question about why they did or did not conform.
* The researcher could invite each participant from the original study to interview and ask them an open question about why they did or did not conform.
* They could compare the responses of participants who conformed more and participants who conformed less to find out reasons why some participants conformed more.

Credit other relevant explanations.

Level	Descriptor	Marks
3	Explanation is detailed and appropriate. The answer is clear with appropriate use of terminology.	3
2	Explanation is relevant but detail is lacking. The answer lacks clarity in places.	2
1	Explanation is limited. The answer is vague/muddled.	1
0	No creditable content.	

PS03 grid

	AO1	AO2	AO3	Total
Section A				
01	1			**1**
02	4			**4**
03	2			**2**
04			3	**3**
05	8		12	**20**
Section B				
06.1		2		**2**
06.2	1			**1**
06.3	2	1		**3**
07			3	**3**
08	4		5	**9**
09	6		6	**12**
Section C				
10		2		**2**
11		3		**3**
12		2		**2**
13		2		**2**
14			2	**2**
15		3		**3**
16		2	1	**3**
17		4		**4**
18		3		**3**
19		3		**3**
20		3		**3**
Unit total	**28**	**30**	**32**	**90**