

INTERNATIONAL A-LEVEL PSYCHOLOGY

PS03

Unit 3 Advanced Topics and Research Methods 2

Mark scheme

January 2026

Version: 1.0 Final

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.

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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	<p>Jia agrees to take part in a study on the nature of sleep and will spend a night in a sleep laboratory. The researchers will use scientific equipment, such as an electroencephalogram (EEG), to monitor what happens to Jia's brain and body when she is asleep.</p> <p>Using your knowledge of the types of sleep, explain what the researchers are likely to observe in Jia's brain and body when she is asleep.</p> <p>Possible application</p> <p>Brain</p> <ul style="list-style-type: none"> • The researchers would see larger, slower and more synchronised activity in Jia's brain after she falls asleep and enters NREM. • There are four stages of NREM and Jia's EEG brain wave activity would look different in each stage, becoming slower and more synchronised as she moves into the deeper stages of NREM, eg Stage 4. • Approximately 75 minutes after falling asleep, Jia's EEG brain wave activity would change to become fast and desynchronised, suggesting that she has entered REM sleep. • After approximately 90 minutes, the cycle would start again, and Jia's brain wave activity would change back into a NREM pattern. <p>Body</p> <ul style="list-style-type: none"> • During NREM various physiological changes would occur in Jia's body such as her respiration, heart rate and blood pressure reducing. However, when Jia enters REM sleep, her heart rate and blood pressure would increase. • Jia's eyes would show signs of rapid eye movement (rolling around underneath her eyelids) whilst she is in REM sleep. • Jia's muscles would still show signs of some tone/no paralysis during NREM. However, when she enters REM sleep her muscles would lose tone/relax, resulting in her body becoming (effectively) paralysed. • If the researchers tried to wake Jia during REM sleep, they would likely find it very difficult (high arousal threshold), compared to trying to wake her during NREM. <p>Credit other relevant material.</p>	<p>6</p> <p>AO2 = 6</p>

	Level	Description	Marks	
	3	Application of the types of sleep to explain what the researchers might observe in Jia's brain and body during sleep is detailed. The answer is clear with appropriate use of specialist terminology.	5–6	
	2	Application of the types of sleep to explain what the researchers might observe in Jia's brain and/or body during sleep is relevant, but detail is lacking. The answer lacks clarity in places. Specialist terminology is occasionally used appropriately. OR application to either brain or body at Level 3.	3–4	
	1	Application of the types of sleep to explain what the researchers might observe in Jia's brain and/or body during sleep is very limited. The answer is vague and/or muddled. Specialist terminology is either absent or inappropriately used. OR application to either brain or body at Level 2 or 1.	1–2	
	0	No creditable content.	0	

Question	Marking Guidance	Total Marks												
02	<p>Briefly evaluate research into the effect of endogenous pacemakers on the sleep/wake cycle.</p> <p>Possible content</p> <ul style="list-style-type: none"> • Research support, eg Siffre (1975), Stephan and Zucker (1972), Morgan (1995), DeCoursey et al. (2000), Darlington et al. (1998). • Methodological issues as some studies were conducted on animals (generalisability), some are single case studies or use small samples (population validity). • Good (internal) validity as endogenous pacemakers (EPs) are observable and measurable components that can be falsified, so they are scientific concepts. • Biological determinism for EPs limits the idea of free will making the concept pessimistic/negative. <p>Credit other relevant material.</p> <table border="1"> <thead> <tr> <th>Level</th><th>Description</th><th>Marks</th></tr> </thead> <tbody> <tr> <td>2</td><td>Evaluation of research into the effect of endogenous pacemakers on the sleep/wake cycle is accurate with some detail. The answer is clear with appropriate use of specialist terminology.</td><td>3–4</td></tr> <tr> <td>1</td><td>Evaluation of research into the effect of endogenous pacemakers on the sleep/wake cycle is limited, vague or muddled. Specialist terminology is either absent or inappropriately used.</td><td>1–2</td></tr> <tr> <td>0</td><td>No creditable content.</td><td>0</td></tr> </tbody> </table>	Level	Description	Marks	2	Evaluation of research into the effect of endogenous pacemakers on the sleep/wake cycle is accurate with some detail. The answer is clear with appropriate use of specialist terminology.	3–4	1	Evaluation of research into the effect of endogenous pacemakers on the sleep/wake cycle is limited, vague or muddled. Specialist terminology is either absent or inappropriately used.	1–2	0	No creditable content.	0	<p>4</p> <p>AO3 = 4</p>
Level	Description	Marks												
2	Evaluation of research into the effect of endogenous pacemakers on the sleep/wake cycle is accurate with some detail. The answer is clear with appropriate use of specialist terminology.	3–4												
1	Evaluation of research into the effect of endogenous pacemakers on the sleep/wake cycle is limited, vague or muddled. Specialist terminology is either absent or inappropriately used.	1–2												
0	No creditable content.	0												

Question	Marking Guidance	Total Marks
03	<p>Describe and evaluate two explanations for the functions of sleep.</p> <p>Possible content</p> <p>Evolutionary explanations</p> <ul style="list-style-type: none"> • Sleep provides a selective advantage to an individual to aid survival. • Hibernation theory: Webb (1982) 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. Therefore, 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. • Predation risk: Meddis (1975) suggested that 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. <p>Restoration theory</p> <ul style="list-style-type: none"> • Physiological states during sleep reflect time of recovery of body and brain. • Aspects of brain metabolism may be restored, eg synaptic connections, synthesis of brain chemicals. • Oswald (1969; 1980) believed that REM sleep restores the brain whereas NREM sleep restores the body. • REM sleep may be associated with development of new synaptic connections/brain development. • Horne's Restoration Theory (1988) suggests that core sleep is essential for brain restoration (REM and NREM); light NREM is optional sleep; body restoration can occur in relaxed waking state. <p>Memory consolidation</p> <ul style="list-style-type: none"> • Memory consolidation suggests that we need to sleep so events that have occurred during the day can become permanently stored as memories. • REM sleep has a role in the development and storage of procedural memories. • NREM sleep (particularly the deeper stages) plays a role in the development and storage of declarative memories. • During NREM, declarative memories are reactivated in the hippocampus and stored as more permanent memories in the frontal cortex. <p>Possible evaluation</p> <p>Evolutionary explanations</p> <ul style="list-style-type: none"> • Use of supporting evidence for evolutionary theories of sleep, eg Lesku et al. (2006), Berger and Phillips (1995), Lima and Rattenborg (2007). • Use of contradictory evidence for evolutionary theories of sleep, eg Allison and Cicchetti (1976), Shapiro et al. (1981). 	<p>20</p> <p>AO1 = 8 AO3 = 12</p>

- 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.

Restoration theory

- Theories consistent with high levels of REM sleep in newborns.
- Use of evidence to support restoration theories, eg case studies of sleep deprivation show mental disturbances including hallucination and language disorders (Tripp (1959), Gardner (1964)).
- Contradictory findings in relation to the effects of exercise on sleep, eg runners sleep longer (in NREM) after marathon (Shapiro et al. (1981); vigorous exercise does not always lead to longer sleep (Horne and Minard (1985)).

Memory consolidation

- Reliable as there is substantial evidence supporting the role of sleep in memory consolidation, eg Karnie et al. (1994), Walker et al. (2002).
- Advances in techniques used to measure brain activity have helped to advance our understanding of the role of sleep in memory consolidation.
- The role of sleep in memory consolidation is very complex and we do not fully understand the processes involved.

Credit other relevant material.

Level	Description	Marks
4	Knowledge of two explanations for the function of sleep is accurate and generally well detailed. Evaluation is effective. Minor detail and/or expansion of argument is sometimes lacking. The answer is clear and focused. Specialist terminology is used effectively.	16–20
3	Knowledge of two explanations for the function of sleep is evident but there are occasional inaccuracies and or omissions. There is some effective evaluation. The answer is mostly clear and organised but occasionally lacks focus. Specialist terminology is used appropriately. OR one explanation about the function of sleep at Level 4.	11–15
2	Limited knowledge of two explanations for the function of sleep 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 about the function of sleep at Level 3.	6–10

	1	Knowledge of two explanations for the function of sleep 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 about the function of sleep at Level 2 or 1.	1–5	
	0	No creditable content.	0	

Section B: Schizophrenia

Total for this section: 30 marks

Question	Marking Guidance	Total Marks
04	<p>There are many issues with the reliability and validity in the diagnosis of schizophrenia. Two of these issues are symptom overlap and co-morbidity.</p> <p>What is meant by symptom overlap and co-morbidity?</p> <p>For each definition, award marks as follows: 2 marks: for a clear definition of symptom overlap/co-morbidity. 1 mark: for a muddled or vague definition of symptom overlap/co-morbidity.</p> <p>Possible content Symptom overlap <ul style="list-style-type: none"> When two or more conditions/illnesses share the same or similar symptoms (making diagnosis more difficult). Co-morbidity <ul style="list-style-type: none"> When two (or more) conditions/illnesses co-exist in the same individual at the same time alongside each other (making accurate diagnosis difficult). Credit use of examples. Credit alternative wording.</p>	<p>4</p> <p>AO1 = 4</p>

Question	Marking Guidance	Total Marks												
05	<p>Explain one strength and one limitation of the dopamine hypothesis as a biological explanation for schizophrenia.</p> <p>Possible strengths</p> <ul style="list-style-type: none"> Supporting evidence from the effectiveness of anti-psychotic drugs which block dopamine receptors (dopamine antagonists) and help to reduce symptoms. If people take drugs that increase dopamine levels (dopamine agonists), such as in the treatment of Parkinson's Disease, it can produce schizophrenic-like symptoms such as hallucinations. Use of supporting evidence, eg Post-mortems find excess dopamine in the limbic system (Iversen, 1979); PET scans show increased receptor levels in basal forebrain (Kessler et al, 2003). <p>Possible limitations</p> <ul style="list-style-type: none"> Oversimplification of the dopamine hypothesis. Many neurotransmitter systems interact and so the mapping of these cortical pathways needs further investigation. Issues with cause or consequence in terms of whether it is the change in dopamine levels that causes schizophrenia, or development of schizophrenia results in changes to dopamine levels. <p>Credit other relevant material.</p> <p>Note: Award a maximum of 3 marks for an answer that only focuses on one strength or one limitation.</p> <table border="1" data-bbox="284 1249 1294 1659"> <thead> <tr> <th>Level</th><th>Description</th><th>Marks</th></tr> </thead> <tbody> <tr> <td>2</td><td>The explanation of one strength and/or one limitation is accurate with some detail. The answer is clear with appropriate use of specialist terminology.</td><td>3–4</td></tr> <tr> <td>1</td><td>The explanation of one strength and/or one limitation is limited, vague or muddled. Specialist terminology is either absent or inappropriately used.</td><td>1–2</td></tr> <tr> <td>0</td><td>No creditable content.</td><td>0</td></tr> </tbody> </table>	Level	Description	Marks	2	The explanation of one strength and/or one limitation is accurate with some detail. The answer is clear with appropriate use of specialist terminology.	3–4	1	The explanation of one strength and/or one limitation is limited, vague or muddled. Specialist terminology is either absent or inappropriately used.	1–2	0	No creditable content.	0	<p>4</p> <p>AO3 = 4</p>
Level	Description	Marks												
2	The explanation of one strength and/or one limitation is accurate with some detail. The answer is clear with appropriate use of specialist terminology.	3–4												
1	The explanation of one strength and/or one limitation is limited, vague or muddled. Specialist terminology is either absent or inappropriately used.	1–2												
0	No creditable content.	0												

Question	Marking Guidance	Total Marks									
06	<p>David tells the doctor that he has been hearing voices that other people cannot hear. David also says that he believes people are trying to hurt him. He tells the doctor that he often lacks the motivation to go to work.</p> <p>The doctor informs David that he is experiencing symptoms of hallucinations, delusions and avolition, and diagnoses David with schizophrenia.</p> <p>David asks the doctor why he might be experiencing these symptoms.</p> <p>Explain how the doctor could use cognitive explanations for schizophrenia to help David understand the possible causes of his symptoms.</p> <p>Possible content</p> <ul style="list-style-type: none"> The doctor could explain that schizophrenia is a result of dysfunctional information processing and therefore David is not processing information correctly/accurately. David's doctor might tell him that he has different perceptions and ways of interpreting mental experiences, compared to people without schizophrenia. Therefore, he misinterprets his own inner voice/thoughts and perceives it as someone else talking to him, which results in the hallucination of hearing voices. The doctor might explain that David's delusions could be related to perceptual deficits when interpreting the facial expressions and/or actions of other people. This leads to David misinterpreting their intent, often seeing it as threatening. The doctor might tell David that his avolition could be related to dysfunctional thought processes such as issues with metarepresentation. This affects David's ability to reflect on his own goals and intentions, which can result in a lack of motivation to engage in daily activities, such as going to work. <p>Credit other relevant material.</p> <table border="1"> <thead> <tr> <th>Level</th><th>Description</th><th>Marks</th></tr> </thead> <tbody> <tr> <td>3</td><td>Application of how the doctor could use cognitive explanations for schizophrenia is detailed. The answer is clear with appropriate use of specialist terminology.</td><td>5–6</td></tr> <tr> <td>2</td><td>Application of how the doctor could use cognitive explanations for schizophrenia is relevant, but detail is lacking. The answer lacks clarity in places. Specialist terminology is occasionally used appropriately.</td><td>3–4</td></tr> </tbody> </table>	Level	Description	Marks	3	Application of how the doctor could use cognitive explanations for schizophrenia is detailed. The answer is clear with appropriate use of specialist terminology.	5–6	2	Application of how the doctor could use cognitive explanations for schizophrenia is relevant, but detail is lacking. The answer lacks clarity in places. Specialist terminology is occasionally used appropriately.	3–4	<p>6</p> <p>AO2 = 6</p>
Level	Description	Marks									
3	Application of how the doctor could use cognitive explanations for schizophrenia is detailed. The answer is clear with appropriate use of specialist terminology.	5–6									
2	Application of how the doctor could use cognitive explanations for schizophrenia is relevant, but detail is lacking. The answer lacks clarity in places. Specialist terminology is occasionally used appropriately.	3–4									

	1	Application of how the doctor could use cognitive explanations for schizophrenia is very limited. The answer is vague and/or muddled. Specialist terminology is either absent or inappropriately used.	1–2	
	0	No creditable content.	0	

Question	Marking Guidance	Total Marks												
07	<p>The doctor gives David some anti-psychotic drugs to take for the next few months.</p> <p>The doctor hopes that these will reduce the symptoms of hallucinations, delusions and avolition that David is experiencing.</p> <p>Using your knowledge of therapies for schizophrenia, explain how anti-psychotic drugs might help treat David's symptoms of schizophrenia.</p> <p>Possible content</p> <ul style="list-style-type: none"> • If David was prescribed typical anti-psychotic drugs (first-generation), these would primarily treat David's positive symptoms of hallucinations and delusions. • Typical anti-psychotic drugs would work by trying to reduce the high levels of dopamine (hyperdopaminergia) in David's brain. They would act as antagonists in the dopamine system by blocking the dopamine (D2) receptors in David's brain, reducing the amount of dopamine that can bind to the receptors. • Since David has a mixture of positive and negative symptoms, he might be prescribed atypical (second generation) anti-psychotics. These would help reduce David's positive symptoms like hallucinations, as well as the negative symptom of avolition. • Atypical anti-psychotics would regulate the levels of both dopamine and serotonin in David's brain by binding to the dopamine and serotonin receptors on the post-synaptic neurons in his brain, reducing the activity of both types of neurotransmitter. <p>Credit other relevant material.</p> <table border="1"> <thead> <tr> <th>Level</th><th>Description</th><th>Marks</th></tr> </thead> <tbody> <tr> <td>2</td><td>Application of how anti-psychotic drugs might help treat David's symptoms of schizophrenia is accurate with some detail. The answer is clear with appropriate use of specialist terminology.</td><td>3–4</td></tr> <tr> <td>1</td><td>Application of how anti-psychotic drugs might help treat David's symptoms of schizophrenia is limited, vague or muddled. Specialist terminology is either absent or inappropriately used.</td><td>1–2</td></tr> <tr> <td>0</td><td>No creditable content.</td><td>0</td></tr> </tbody> </table>	Level	Description	Marks	2	Application of how anti-psychotic drugs might help treat David's symptoms of schizophrenia is accurate with some detail. The answer is clear with appropriate use of specialist terminology.	3–4	1	Application of how anti-psychotic drugs might help treat David's symptoms of schizophrenia is limited, vague or muddled. Specialist terminology is either absent or inappropriately used.	1–2	0	No creditable content.	0	<p>4</p> <p>AO2 = 4</p>
Level	Description	Marks												
2	Application of how anti-psychotic drugs might help treat David's symptoms of schizophrenia is accurate with some detail. The answer is clear with appropriate use of specialist terminology.	3–4												
1	Application of how anti-psychotic drugs might help treat David's symptoms of schizophrenia is limited, vague or muddled. Specialist terminology is either absent or inappropriately used.	1–2												
0	No creditable content.	0												

Question	Marking Guidance	Total Marks						
08	<p>Describe and evaluate cognitive therapy as a treatment for schizophrenia.</p> <p>Possible content</p> <ul style="list-style-type: none"> • Cognitive therapy, including cognitive behavioural therapy (CBT), can be used to reduce the symptoms of schizophrenia and help to ease the severity of psychotic episodes. • Involves a number of sessions (5–20) with a therapist over the course of several months. • Involves identifying irrational beliefs. • A therapist helps the person to challenge their irrational beliefs and uses reality testing to reduce distress. • CBT can be used to help overcome irrational thinking. • Use of homework ‘diaries’ for the person to complete between therapy sessions. • Coping strategy enhancement through education and symptom targeting. • Cognitive restructuring via Ellis’ ABCDE framework. Identifying activating event (A), exploring beliefs (B), recognising consequences (C), disputing irrational beliefs (D) and restructured belief (E). <p>Possible evaluation</p> <ul style="list-style-type: none"> • Use of supporting evidence, eg Morrison et al. (2014), Drury et al. (1996), Kuipers et al. (1997). • CBT requires self-awareness and willingness to engage with the process, which some people with schizophrenia lack. • Not effective in treating all symptoms of schizophrenia, eg avolition, and so not effective for all people with schizophrenia. • Requires a course of sessions which may lead to high drop-out rates, especially at times of severe psychotic episodes. • May not actually treat the symptoms of schizophrenia but teach clients strategies for dealing with symptoms (Trower et al., 2004). • Comparison with other therapies, eg no side effects compared to drug therapy. <p>Credit other relevant material.</p> <table border="1"> <thead> <tr> <th>Level</th><th>Description</th><th>Marks</th></tr> </thead> <tbody> <tr> <td>4</td><td>Knowledge of cognitive therapy is accurate and generally well detailed. Evaluation is effective. Minor detail and/or expansion of argument is sometimes lacking. The answer is clear and focused. Specialist terminology is used effectively.</td><td>10–12</td></tr> </tbody> </table>	Level	Description	Marks	4	Knowledge of cognitive therapy is accurate and generally well detailed. Evaluation is effective. Minor detail and/or expansion of argument is sometimes lacking. The answer is clear and focused. Specialist terminology is used effectively.	10–12	<p>12</p> <p>AO1 = 6 AO3 = 6</p>
Level	Description	Marks						
4	Knowledge of cognitive therapy is accurate and generally well detailed. Evaluation is effective. Minor detail and/or expansion of argument is sometimes lacking. The answer is clear and focused. Specialist terminology is used effectively.	10–12						

	3	Knowledge of cognitive therapy is evident but there are occasional inaccuracies and/or omissions. There is some effective evaluation. The answer is mostly clear and organised but occasionally lacks focus. Specialist terminology is used appropriately.	7–9
	2	Limited knowledge of cognitive therapy is present. Any evaluation 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 therapy 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.	1–3
	0	No creditable content.	0

Section C: Research Methods 2

Total for this section: 30 marks

	<p>A psychologist investigated the effects of praise on performance. Previous research had suggested that people will perform better on tasks if they have been given praise after a previous attempt.</p> <p>The psychologist obtained 30 participants to take part in the study. The participants sat in a room and played a difficult computer game. They had to move a character across different platforms to get as far as they could, without falling off the platforms. The further they moved the character across the platforms, the higher their score. Each participant had five attempts at the game.</p> <p>The 30 participants were randomly allocated into two groups of 15 participants: Group 1 (no praise) received no praise from the psychologist. Group 2 (praise) received praise from the psychologist about how well they had performed after each attempt.</p> <p>After participants had completed their five attempts, the psychologist recorded the highest score of each participant.</p>	
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Question	Marking Guidance	Total Marks
09	<p>Identify the type of experiment used in this study.</p> <p>Shade one box only.</p> <p>Answer key:</p> <p>C – Laboratory</p>	<p>1</p> <p>AO2 = 1</p>

Question	Marking Guidance	Total Marks
10	<p>Identify the experimental design used in this study.</p> <p>Shade one box only.</p> <p>Answer key:</p> <p>B – Independent groups</p>	<p>1</p> <p>AO2 = 1</p>

Question	Marking Guidance	Total Marks
11	<p>Identify whether the psychologist should use a directional or non-directional hypothesis for this study. Explain your answer.</p> <p>Award marks as follows 1 mark: for correctly identifying a directional hypothesis.</p> <p>And</p> <p>1 mark: for stating that there has been previous research into this area, suggesting that people perform better on tasks if they have been given praise after a previous attempt.</p>	<p>2</p> <p>AO2 = 2</p>

Question	Marking Guidance	Total Marks
12	<p>The psychologist used a random sampling technique to obtain the 30 participants for the study.</p> <p>What is meant by random sampling?</p> <p>Award marks as follows 2 marks: for a clear definition of random sampling. 1 mark: for a muddled or vague definition of random sampling.</p> <p>Possible content A way of obtaining participants where every member of the target population has an equal chance of being selected to take part in the study, often done using a lottery/raffle/names out of a hat method.</p> <p>Credit alternative wording.</p>	<p>2</p> <p>AO1 = 2</p>

Question	Marking Guidance	Total Marks												
13	<p>Evaluate the use of random sampling techniques in psychological research.</p> <p>Possible evaluation</p> <ul style="list-style-type: none"> • The sample is not affected by researcher bias as the researcher has no control over who is selected which should result in a more generalisable/representative sample. • Compared to other sampling methods, it can be very time-consuming if the target population has thousands of people in it. • Random sampling can be difficult to carry out accurately because you need a list of everyone from the target population which could be difficult to obtain. • You may still end up with an unrepresentative sample, eg you could, at random, draw a sample of just males. <p>Credit other relevant material.</p> <table border="1" data-bbox="284 904 1294 1314"> <thead> <tr> <th>Level</th><th>Description</th><th>Marks</th></tr> </thead> <tbody> <tr> <td>2</td><td>Evaluation of random sampling is accurate with some detail. The answer is clear with appropriate use of specialist terminology.</td><td>3–4</td></tr> <tr> <td>1</td><td>Evaluation of random sampling is limited, vague or muddled. Specialist terminology is either absent or inappropriately used.</td><td>1–2</td></tr> <tr> <td>0</td><td>No creditable content.</td><td>0</td></tr> </tbody> </table>	Level	Description	Marks	2	Evaluation of random sampling is accurate with some detail. The answer is clear with appropriate use of specialist terminology.	3–4	1	Evaluation of random sampling is limited, vague or muddled. Specialist terminology is either absent or inappropriately used.	1–2	0	No creditable content.	0	<p>4</p> <p>AO3 = 4</p>
Level	Description	Marks												
2	Evaluation of random sampling is accurate with some detail. The answer is clear with appropriate use of specialist terminology.	3–4												
1	Evaluation of random sampling is limited, vague or muddled. Specialist terminology is either absent or inappropriately used.	1–2												
0	No creditable content.	0												

Question	Marking Guidance	Total Marks
14	<p>Before completing the study, the psychologist first conducted a pilot study.</p> <p>What is meant by a pilot study?</p> <p>Award marks as follows 2 marks: for a clear definition of a pilot study. 1 mark: for a muddled or vague definition of a pilot study.</p> <p>Possible content A small-scale version of a study that takes place before the actual investigation, which is used to check that the study's design, eg procedures, are accurate and appropriate.</p> <p>Credit alternative wording.</p>	<p>2</p> <p>AO1 = 2</p>

Question	Marking Guidance	Total Marks
15	<p>Briefly explain why the psychologist decided to conduct a pilot study.</p> <p>Award marks as follows 2 marks: for a clear explanation of why the psychologist conducted a pilot study. 1 mark: for a muddled or vague explanation of why the psychologist conducted a pilot study.</p> <p>Possible content</p> <ul style="list-style-type: none"> • The psychologist may have wanted to check that the game was suitably difficult as, if it was too easy, then the participants would not need any praise. • The psychologist may have wanted to check that the praise they provided was suitable and did have some influence on the participants. • The psychologist may have wanted to check if five attempts at the game for each participant was sufficient to measure the effects of praise. <p>Credit other relevant material.</p>	<p>2</p> <p>AO2 = 2</p>

Question	Marking Guidance	Total Marks
16	<p>The psychologist calculated the mean high score for each group.</p> <p>Explain how to calculate the mean.</p> <p>Award 1 mark for each of the following</p> <ul style="list-style-type: none"> • Add up all the scores in the group/condition to get an overall total. • Divide this total by the overall number of scores (that were added together). <p>Credit alternative wording.</p> <p>Note: Award a maximum of 1 mark for a muddled explanation that addresses one or both bullet points.</p>	<p>2</p> <p>AO1 = 2</p>

Question	Marking Guidance	Total Marks									
17	<p>The results of the psychologist's study are shown in Table 1.</p> <p>Table 1 Mean and standard deviation for the high scores in the game for each group.</p> <table border="1"> <tr> <th></th><th>Group 1 (No praise)</th><th>Group 2 (Praise)</th></tr> <tr> <td>Mean high score</td><td>31</td><td>48</td></tr> <tr> <td>Standard deviation for high scores</td><td>2.9</td><td>1.2</td></tr> </table> <p>What do the mean and standard deviation values in Table 1 suggest about the influence of praise on performance? Explain your answer.</p> <p>Award marks as follows</p> <p>Mean</p> <p>1 mark for a statement of what the mean values suggest.</p> <ul style="list-style-type: none"> People who receive praise will perform better on tasks (such as playing a computer game) than those who have not received praise. <p>PLUS</p> <p>1 mark for an explanation of their answer.</p> <ul style="list-style-type: none"> The mean high score on the game was much higher (48) for those who had received praise (group 2) compared to the mean high score on the game (31) for those who had not received praise (group 1). <p>Standard deviation</p> <p>1 mark for a statement of what the standard deviation values suggest.</p> <ul style="list-style-type: none"> There was less variability/more consistency in the performance (obtaining high scores on the game) of the group who had received praise, suggesting that many of them had scored similarly; compared to the group who received no praise, whose performance (high scores) was more varied. <p>PLUS</p> <p>1 mark for an explanation of their answer.</p> <ul style="list-style-type: none"> The standard deviation is smaller in the praise condition (1.2) compared to the no praise condition (2.9). <p>Accept alternative wording.</p> <p>Note: No credit for simply stating figures from Table 1.</p> <p>Note: Justifications are not creditworthy in isolation.</p>		Group 1 (No praise)	Group 2 (Praise)	Mean high score	31	48	Standard deviation for high scores	2.9	1.2	<p>4</p> <p>AO2 = 2</p> <p>AO3 = 2</p>
	Group 1 (No praise)	Group 2 (Praise)									
Mean high score	31	48									
Standard deviation for high scores	2.9	1.2									

Question	Marking Guidance	Total Marks
18	<p>The psychologist gathered interval data in this study.</p> <p>What is meant by interval data?</p> <p>Award marks as follows 2 marks: for a clear definition of interval data. 1 mark: for a muddled or vague definition of interval data.</p> <p>Possible content</p> <ul style="list-style-type: none"> Data measured using units of equal intervals based on (scientific/objective) numerical scales in which the intervals are set and precise, eg measuring time/height/weight/temperature. <p>Credit alternative wording.</p>	<p>2</p> <p>AO1 = 2</p>

Question	Marking Guidance	Total Marks
19	<p>To analyse the results of this study, the psychologist decided to use an unrelated t-test.</p> <p>Apart from interval data, explain two other reasons why it was appropriate for the psychologist to choose an unrelated t-test to analyse the results of this study.</p> <p>For each of the points below, award 2 marks: for a clear and coherent reason explicitly linked to the study. 1 mark: for a limited reason implicitly linked to the study.</p> <p>Possible content</p> <ul style="list-style-type: none"> The psychologist is testing to see if there is a difference (in scores on the game) between participants who have been given praise and those who have not been given praise. The psychologist is using an unrelated design. The design is independent groups as participants are either in the group that receives praise or the group that does not receive praise. <p>Credit alternative wording.</p>	<p>4</p> <p>AO2 = 4</p>

Question	Marking Guidance	Total Marks
20	<p>Briefly outline how the psychologist could have used the test-retest method to assess the reliability of the study.</p> <p>Award marks as follows 2 marks: for a clear outline of how the psychologist could have used the test-retest method to assess the reliability of the study. 1 mark: for a muddled or vague outline of how the psychologist could have used the test-retest method to assess the reliability of the study.</p> <p>Possible content</p> <ul style="list-style-type: none"> • The psychologist would need to conduct the study again on the same participants at a later date. • If the results of the second study are similar to the results of the first study, they can assume that the results are reliable. <p>Note: maximum of 1 mark awarded if responses do not explicitly indicate that the study needs to be repeated on the same participants.</p>	<p>2</p> <p>AO2 = 2</p>

Question	Marking Guidance	Total Marks
21	<p>When interpreting the results of a statistical test and drawing conclusions, researchers can sometimes make Type I or Type II errors.</p> <p>Outline what is meant by a Type II error.</p> <p>Award marks as follows 2 marks: for a clear outline of a Type II error. 1 mark: for a muddled or vague outline of a Type II error.</p> <p>Possible content</p> <ul style="list-style-type: none"> • When the researcher incorrectly accepts their null hypothesis when they should have rejected it / accepted the researcher's experimental /alternative hypothesis. • Known as a 'false negative'. • The researcher thought that they had not found a significant difference/correlation in their study, when they have. • Occurs when significance level is too strict (eg 0.01/1%). <p>Credit alternative wording.</p>	<p>2</p> <p>AO1 = 2</p>

PS03 grid

	AO1	AO2	AO3	Total
Section A				
01		6		6
02			4	4
03	8		12	20
Section B				
04	4			4
05			4	4
06		6		6
07		4		4
08	6		6	12
Section C				
09		1		1
10		1		1
11		2		2
12	2			2
13			4	4
14	2			2
15		2		2
16	2			2
17		2	2	4
18	2			2
19		4		4
20		2		2
21	2			2
Unit total	28	30	32	90