INTERNATIONAL A-LEVEL
PSYCHOLOGY
PS03

Unit 3 Advanced Topics and Research Methods 2

Mark scheme

June 2022

Version: 1.0 Final Mark Scheme

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	**Briefly describe two characteristics of REM sleep.**	**4**
		AO1 = 4

Possible content
- Loss of muscle tone – in REM sleep the body muscles lose tone and movement is limited.
- Rapid eye movement – REM sleep is characterised by rapid movement of the eyes seen by eyeballs moving quickly under closed eyelids.
- Paradoxical sleep – REM sleep is sometimes called paradoxical sleep as there is a contrast between the high arousal in the brain (as measured on EEG) but a largely unresponsive body.
- Phases of REM – during an average 8 hours of sleep there are approximately 5 phases of REM sleep each lasting about 15 minutes. This is an ultradian biological rhythm.
- Dreaming – when woken from this type of sleep about 80% of people report vivid dreams.

Credit other relevant description.

Level	Description	Marks
2	The description of **two** features of REM sleep is accurate with some detail. The answer is clear with appropriate use of specialist terminology.	3–4
1	The description of **two** features of REM sleep is limited, vague or muddled. Specialist terminology is either absent or inappropriately used. Or one feature at **Level 2**.	1–2
0	No creditable content.	0

Question	Marking guidance	Total marks
02	**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.** **Possible content** • A symptom of insomnia is sleep onset latency. Sara has found it difficult to fall asleep suggesting she has this symptom. • Insomnia is characterised by increased night-time awakenings. Sara appears to have this symptom as she wakes up regularly throughout the night. • One symptom is daytime tiredness which affects ability to function normally. Sara's lack of sleep is beginning to have an adverse effect on her ability to function (she often cannot carry out her job). Credit other relevant content.	**4** **AO1 = 2** **AO2 = 2**

Level	Description	Marks
2	The description of **two** symptoms of insomnia is accurate with some detail. There is appropriate application to Sara. The answer is clear with appropriate use of specialist terminology.	**3–4**
1	The description of **two** symptoms of insomnia is limited, vague or muddled. Application is weak/absent. Specialist terminology is either absent or inappropriately used. Or one feature at **Level 2**.	**1–2**
0	No creditable content.	**0**

Question	Marking guidance	Total marks
03	**What are exogenous zeitgebers?** **Possible content** Exogenous zeitgebers are environmental factors (external stimuli) which control/synchronise/regulate biological rhythms, such as light and temperature. **2 marks** for a clear outline of the term exogenous zeitgebers. **1 mark** for a limited, vague or muddled outline.	**2** **AO1 = 2**

Question	Marking guidance	Total marks
04	**Discuss at least one restoration theory of sleep.** **Possible knowledge** • 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) – REM sleep restores brain, NREM sleep restores body. • REM sleep may be associated with development of new synaptic connections/brain development. • Horne's Restoration Theory – core sleep essential for brain restoration (REM and deep NREM); light NREM is optional sleep. Body restoration can occur in relaxed waking state. Credit other relevant content. **Possible discussion** • 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 (Gardner (1964), Tripp (1960s)). • Contradictory findings in relation to the effects of exercise on sleep – vigorous exercise does not always lead to longer sleep (Shapiro *et al.* (1981)). • Effects of fatal familial insomnia – rare inherited condition where people stop sleeping in middle age and usually die within 2 years. • REM rebound after deprivation supports crucial role of REM sleep. • Comparison/links with other theories, eg evolutionary theory and memory consolidation. Credit other relevant discussion.	20 AO1 = 8 AO3 = 12

Level	Description	Marks
4	Knowledge of **at least one** restoration theory of sleep 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.	16–20
3	Knowledge of **at least one** restoration theory of sleep 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.	11–15
2	Limited knowledge of **at least one** restoration theory of sleep is present. Any discussion is of limited effectiveness. The answer lacks clarity, accuracy and	6–10

		organisation in places. Specialist terminology is occasionally used appropriately.	
	1	Knowledge of **at least one** restoration theory of sleep is very limited. Discussion is limited, poorly focused or absent. The answer lacks clarity, has many inaccuracies and is poorly organised. Specialist terminology is either absent or inappropriately used.	**1–5**
	0	No creditable content.	**0**

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

Question	Marking guidance	Total marks
05	**Briefly describe how neural correlates can be used to explain schizophrenia.** **Possible description** • The neural correlates explanation for schizophrenia looks at the correlation between structure and/or functioning of various parts of the brain and the severity of schizophrenic symptoms. • Changes to the structure of the brain are linked to the behaviours seen in people with schizophrenia. For example, CT scans have shown ventricular enlargement in people with schizophrenia and this is linked to negative symptoms, eg avolition. • One area of the brain that appears damaged on MRI scans of people with schizophrenia is the prefrontal cortex. This area could account for the inability of some people suffering from schizophrenia to organise thoughts. • The primary visual area in the occipital lobe can be damaged in people suffering from schizophrenia and this can lead to incorrect processing of visual stimuli. • The auditory illusions associated with schizophrenia can be traced to brain damage in the auditory systems such as Wernicke's. • Reduced dopamine in the frontal area of the brain might be causing negative symptoms whilst increased dopamine in other areas might be responsible for the positive symptoms. • Glutamate activity has been found to be reduced in schizophrenics and this is linked to the NMDA receptors working less effectively. Glutamate acts to reduce dopamine, therefore if glutamate is reduced this will increase dopamine levels and result in schizophrenic symptoms. • Description of evidence, eg ventral striatum/negative symptoms of schizophrenia (Juckel *et al*. 2006), etc. Credit other relevant description.	**4** **AO1 = 4**

Level	Description	Marks
2	The description of neural correlates as an explanation for schizophrenia is accurate with some detail. The answer is clear with appropriate use of specialist terminology.	3–4
1	The description of neural correlates as an explanation for 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
06.1	**Explain one strength of using anti-psychotic drugs as a therapy for schizophrenia.** **Possible strengths** • Use of evidence for effectiveness of anti-psychotic drugs, eg Thornley (2003), Adams *et al*. (2005), Cole *et al*. (1964), Meltzer (1999), McGlashan *et al*. (2006) etc. • Anti-psychotic drugs are accessible for people as many of them can be taken in a variety of forms, eg tablets, depots, etc. • The typical anti-psychotic drugs are particularly effective in treating the positive symptoms of schizophrenia such as hallucinations and delusions. • Anti-psychotic drugs have revolutionised the treatment of schizophrenia and decreased the number of people who were previously separated from society because they had been isolated/hospitalised. Credit other relevant strengths.	**3** **AO3 = 3**

Level	Description	Marks
3	A strength of using anti-psychotic drugs as a therapy for schizophrenia is both detailed and appropriate. The answer is clear with appropriate use of specialist terminology.	3
2	A strength of using anti-psychotic drugs as a therapy for schizophrenia is relevant, but detail is lacking. The answer lacks clarity in places. There is some appropriate use of specialist terminology.	2
1	A strength of using anti-psychotic drugs as a therapy for schizophrenia is very limited. The answer is vague/muddled. Specialist terminology is either absent or inappropriately used.	1
0	No creditable content.	0

Question	Marking guidance	Total marks
06.2	**Explain one limitation of using anti-psychotic drugs as a therapy for schizophrenia.** **Possible limitations** • High attrition rates because typical anti-psychotic drugs can cause side effects such as confusion, weight gain, involuntary movement, etc. • Typical anti-psychotics have no/little effect on negative symptoms. • Not all people respond to anti-psychotic drugs. • Anti-psychotic drugs are used to reduce the symptoms of schizophrenia only, and do not offer a cure. This means that the drugs are usually taken for life, and people have to cope with the side effects long term. • Anti-psychotic drugs must be taken regularly even when symptoms are not currently being experienced. • Ethical issues with the use of drugs to control people. • Issues such as reductionism where these are related to anti-psychotic drug treatment, eg anti-psychotic drugs operate at the basic level of cells and chemicals and do not consider the person's whole experience and thus are likely to only provide a partial treatment. Credit other relevant limitations.	3 AO3 = 3

Level	Description	Marks
3	A limitation of using anti-psychotic drugs as a therapy for schizophrenia is both detailed and appropriate. The answer is clear with appropriate use of specialist terminology.	3
2	A limitation of using anti-psychotic drugs as a therapy for schizophrenia is relevant, but detail is lacking. The answer lacks clarity in places. There is some appropriate use of specialist terminology.	2
1	A limitation of using anti-psychotic drugs as a therapy for schizophrenia is very limited. The answer is vague/muddled. Specialist terminology is either absent or inappropriately used.	1
0	No creditable content.	0

Question	Marking guidance	Total marks
07	**Discuss issues of reliability and validity in the diagnosis of schizophrenia.** **Possible content** • Reliability refers to the consistency of a diagnosis. • Reliability can be measured using test-retest (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)). • Diagnosis of schizophrenia can change over time. The diagnostic criteria in the ICD/DSM change as they are updated. This can affect both the reliability and validity of a diagnosis. As each edition of the DSM has been published inter-rater reliability has improved, eg Beck *et al*. (1962) found a 54% concordance rate between practitioners whereas in 2005 Soderberg *et al*. found a concordance rate of 81%. • Validity refers to the accuracy of diagnosis. • Reliability is an essential pre-requisite for validity. So, if a diagnosis of schizophrenia is not reliable then it cannot be valid. • Measures of validity include: predictive validity, descriptive validity and aetiological validity. • Knowledge of issues such as cultural bias, comorbidity, etc if related to reliability/validity of diagnosis of schizophrenia. Credit other relevant content. **Possible discussion** • Use of supporting evidence for reliability, eg Jakobson *et a*l (2005), Soderberg *et a*l (2005). • Use of contradictory evidence for reliability, eg Rosenhan (1973), Read *et al* (2004). • People diagnosed with schizophrenia can differ greatly on symptoms, suggesting the idea of a single label of schizophrenia is not valid. • Use of supporting evidence for validity, eg (Hollis (2000), Jager *et al* (2003). • Use of contradictory evidence for validity, eg Baillie *et al*. (2009), Allardyce *et al*. (2006). • Discussion of threats to reliability and validity including issues of: Co-morbidity, Cultural bias, Gender bias, Symptom overlap. Credit other relevant discussion.	20 AO1 = 8 AO3 = 12

Level	Description	Marks
4	Knowledge of the issues of reliability and validity in the diagnosis of schizophrenia are accurate and generally well detailed. Discussion is thorough and effective. 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 the issues of reliability and validity in the diagnosis of schizophrenia are evident but there are occasional inaccuracies/omissions. Discussion is mostly effective. The answer is mostly clear and organised but occasionally lacks focus. Specialist terminology is mostly used appropriately.	11–15
2	Limited knowledge of the issues of reliability and/or validity in the diagnosis of schizophrenia is present. Focus is mainly on description. Any discussion is of limited effectiveness. The answer lacks clarity, accuracy and organisation in places. Specialist terminology is occasionally used appropriately.	6–10
1	Knowledge of the issues of reliability and/or validity in the diagnosis of 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.	1–5
0	No creditable content.	0

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

Question	Marking guidance	Total marks
08	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 | **What might the researcher conclude from the results in Table 1? Use data from the table to justify your answer.** **Content** • More boys ask questions in a (psychology) lesson than girls. • Many more boys (7 out of 12, over 50%) asked a question during the lesson, than girls (3 out of 12, just 25%) asked a question during the lesson. OR • Fewer girls ask questions in a (psychology) lesson than boys. • Only 3 of the 12 girls (25%) asked a question during the lesson whereas 7 of the 12 boys (over 50%) asked a question during the lesson. Credit other relevant content. | Level	Description	Marks
2	The conclusion drawn is clear and detailed with appropriate justification. There is appropriate use of terminology.	3–4
1	The conclusion drawn is limited, vague or muddled. The justification is vague/missing. The answer lacks clarity. Use of terminology is either absent or inappropriate.	1–2
0	No creditable content.	0		4 AO2 = 2 AO3 = 2

Question	Marking guidance	Total marks
09	**Should the hypothesis for this study be directional or non-directional? Explain your answer.** **1 mark** for directional. **1 mark** for an explanation: Previous research allows the researcher to predict which group (out of boys and girls) will ask more questions.	**2** **AO2 = 2**

Question	Marking guidance	Total marks
10	**What types of data were collected in this study?** **Shade two boxes.** **A Meta-analysis data** **B Primary data** **C Qualitative data** **D Quantitative data** **E Secondary data** Answer = B (Primary data) and D (Quantitative data)	**2** **AO2 = 2**

Question	Marking guidance	Total marks
11	**With reference to this study, explain what is meant by covert observation.** **2 marks** for a clear explanation of covert observation related to the study. **1 mark** for a muddled or vague explanation. **Possible content** • The girls and boys in the psychology lesson would be unaware that research was being carried out in the classroom and that their 'asking a question' behaviour was being observed and recorded. • Observations of the girls and boys were video recorded without their knowledge, etc. Credit other relevant content.	**2** **AO2 = 2**

Question	Marking guidance	Total marks
12	**Briefly explain why this study is a non-participant observation.** **1 mark** for a brief explanation that is applied to the study, eg: This study is a non-participant observation as the researcher is not involved in the lesson.	1 AO2 = 1

Question	Marking guidance	Total marks
13	**Explain why it was important to observe the girls and boys in the same lesson.** **Possible content** • Observing the girls and boys at the same time in the same lesson was important in order to control possible extraneous variables. • If the girls and boys had been in different lessons, at a different time of day, possibly with a different teacher, then any differences found between the boys and girls could be due to these extraneous variables. • Because these variables were controlled, any differences found can be more confidently attributed to differences between girls and boys. Credit other relevant content.	4 AO2 = 4

Level	Description	Marks
2	The explanation is clear and detailed with appropriate reference to control. There is appropriate use of specialist terminology.	3–4
1	The explanation is limited, vague or muddled. The answer lacks clarity. Use of specialist terminology is either absent or inappropriate.	1–2
0	No creditable content.	0

Question	Marking guidance	Total marks
14.1	**Name two ethical issues that the researcher should have considered in this study.** **1 mark** each for any **two** from: Confidentiality; consent; deception; debrief; right to withdraw; protection from harm; privacy. (Accept other appropriate ethical issues, eg respect etc).	2 AO2 = 2

Question	Marking guidance	Total marks
14.2	**Explain how the researcher could deal with the two ethical issues that you have named in your answer to Question 14.1.** For **each** ethical issue, award: **2 marks** for a clear explanation of how the researcher could have dealt with the issue related to the study. **1 mark** for a muddled or vague explanation. **Possible content** The answer will depend on the issue identified, for example: • **protection of participants** – At the end of the observation (as part of the debrief) all the boys and girls would be informed of the study and asked if they felt any harm/anxiety. The boys and girls would then be offered counselling (or similar) to deal with any anxiety experienced • **confidentiality** – The researcher would assure all the boys and girls who had been in the lesson that he observed that details of who they were, like their names, or lesson subject (psychology) would not be shared or stored and no one would be able to identify them from the research when it was published • **right to withdraw** – At the end of the study, as part of the debrief, the boys and girls would be given the right to withdraw any data/recordings, etc if they did not wish to be involved and did not want to have their data published.	4 AO2 = 4

Question	Marking guidance	Total marks
15.1	**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.** **Possible content** • Independent design (2 groups – girls and boys). • Nominal/categorical data (number of girls and boys who ask/do not ask a question in class). • Looking for an association between categories of data (girls and boys; questioning behaviour). • Looking for a difference (between girls and boys). Credit other appropriate content.	**3** **AO2 = 3**

Level	Description	Marks
3	The explanation and application is accurate and clear. There is appropriate use of specialist terminology.	3
2	The explanation is appropriate but lacks some clarity. There is some use of specialist terminology.	2
1	For a muddled explanation with some appropriate detail. Specialist terminology may be absent.	1
0	No creditable content.	0

Question	Marking guidance	Total marks
15.2	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
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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. **1 mark** for stating that this is a significant result. **3 marks** for the justification. • The critical/table value for χ^2 at P = 0.05 (5%) is 2.71 • As the calculated value of χ^2 at 2.74 is more than the critical/table value, the result is significant. Credit reference to rejecting the null hypothesis/accepting the alternative hypothesis and/or the probability level of 5% means P = 0.05 | Level	Description	Marks
3	The justification is accurate and clear with appropriate use of critical and calculated values.	3
2	The justification accurately refers to the appropriate critical value (2.71) but lacks some clarity.	2
1	For a muddled justification that contains some appropriate detail.	1
0	No creditable content.	0		4 AO2 = 4

Question	Marking guidance	Total marks
16	**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.** **1 mark** for a closed question which must have the fixed options clearly given, eg: Please answer yes or no. "Did you ask a question in the psychology class today?" Yes/No "Do you enjoy psychology lessons?" Never/Sometimes/Always **1 mark** for an open question, eg: "Tell me why you did not (did) ask a question in the psychology class today." "Explain how you feel when you want to ask a question in the psychology lesson."	**2** **AO2 = 2**