

INTERNATIONAL AS PSYCHOLOGY PS02

Unit 2 Biopsychology, Development and Research Methods 1

Mark scheme

June 2024

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.

Further copies of this mark scheme are available from www.oxfordaqa.com

Copyright information

OxfordAQA retains the copyright on all its publications. However, registered schools/colleges for OxfordAQA are permitted to copy material from this booklet for their own internal use, with the following important exception: OxfordAQA cannot give permission to schools/colleges to photocopy any material that is acknowledged to a third party even for internal use within the centre.

Copyright © 2024 OxfordAQA International Examinations and its licensors. All rights reserved.

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: Biopsychology

Total for this section: 30 marks

Question	Marking Guidance	Total Marks
01	Describe Wernicke's area. Award marks as follows 2 marks for a clear description of Wernicke's area. 1 mark for a muddled or vague description of Wernicke's area. Possible content • It is a small cortical area of the temporal lobe. • Wernicke's area is responsible for language comprehension and understanding of verbal or written language. • It enables meaningful speech. Credit other relevant material.	2 AO1 = 2

Question	Marking Guidance	Total Marks												
02	Describe the functions of the central nervous system. Possible content • The CNS controls, maintains and produces behaviour. It regulates the body's physiological processes. • The brain controls the majority of bodily functions, eg movement, sensations, thoughts, speech, memory. • Reflexes can occur via the spinal cord without the involvement of the brain. • The spinal cord carries signals (messages) between the brain and the peripheral nervous system. • Neurons allow the different parts of the body to communicate with each other via the brain and the spinal cord. • Sensory neurons carry information from the sensory receptors to the CNS. • Motor neurons carry information from the CNS/relay neuron to the effectors. Credit other relevant material. <table border="1"> <thead> <tr> <th>Level</th><th>Description</th><th>Marks</th></tr> </thead> <tbody> <tr> <td>2</td><td>Knowledge of functions of the CNS 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>Knowledge of functions of the CNS 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	Knowledge of functions of the CNS is accurate with some detail. The answer is clear with appropriate use of specialist terminology.	3–4	1	Knowledge of functions of the CNS is limited, vague or muddled. Specialist terminology is either absent or inappropriately used.	1–2	0	No creditable content.	0	4 AO1 = 4
Level	Description	Marks												
2	Knowledge of functions of the CNS is accurate with some detail. The answer is clear with appropriate use of specialist terminology.	3–4												
1	Knowledge of functions of the CNS 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	Dmitry walks on some broken glass and cuts his foot. Briefly explain how Dmitry's motor neurons will respond in this situation. Award marks as follows 2 marks for a clear explanation of how Dmitry's motor neurons will respond to this situation. 1 mark for a muddled or vague explanation of how Dmitry's motor neurons will respond. Possible application • Dmitry's motor neurons receive information from the relay neuron/CNS to move his foot away from the glass. • They send signals to the skeletal muscles (effectors) in his leg to lift up his foot. • As this is a reflex, the response of lifting up the foot away from the glass will be instant, without the involvement of Dmitry's brain. Credit other relevant material.	2 AO2 = 2

Question	Marking Guidance	Total Marks												
04	Briefly evaluate studies into plasticity. Possible evaluation includes • Use of studies investigating plasticity, eg Blakemore & Mitchell, 1973 – kitten study; Villablanca & Hovda, 2000 – case studies of the effects of hemispherectomy. • Research support using objective evidence, like brain scans, eg Giedd, 2004 – longitudinal study tracking brain changes in children using MRI scanners. • Use of animal research, including issues with generalisation from animals to humans. • Use of case studies: issues with generalisation of results from case studies or studies with small participant numbers. • Application of functional recovery research in terms of neurorehabilitation. Credit other relevant material. <table border="1"> <thead> <tr> <th>Level</th><th>Description</th><th>Marks</th></tr> </thead> <tbody> <tr> <td>2</td><td>Evaluation of studies into plasticity 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 studies into plasticity 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 studies into plasticity is accurate with some detail. The answer is clear with appropriate use of specialist terminology.	3–4	1	Evaluation of studies into plasticity is limited, vague or muddled. Specialist terminology is either absent or inappropriately used.	1–2	0	No creditable content.	0	4 AO3 = 4
Level	Description	Marks												
2	Evaluation of studies into plasticity is accurate with some detail. The answer is clear with appropriate use of specialist terminology.	3–4												
1	Evaluation of studies into plasticity 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															
05	Describe the procedure and findings from one research study investigating activity in split brains. Possible content - Sperry (1965): Description of the experimental procedure using the divided field paradigm, eg position of the participant, flashing of words or objects on either side of focus point. Sperry found that a word projected to the right visual field can be recognised and spoken by the participant as it is processed by the left hemisphere where language centres are located. A word presented to the left visual field cannot be recognised and spoken as it is processed by the right hemisphere without access to language centres. - Turk et al (2002): Description of procedure using non-verbal stimuli like morphed faces. A series of morphed faces with different percentages of familiarity. They used the divided field procedure to present face stimulus to one hemisphere. Turk found that the right hemisphere showed a clear bias towards identifying the morphed faces as a familiar one. The left hemisphere showed a clear bias towards identifying the morphed faces as oneself. Credit other relevant material. <table border="1"> <thead> <tr> <th>Level</th><th>Description</th><th>Marks</th></tr> </thead> <tbody> <tr> <td>3</td><td>Knowledge of procedures and findings of one study investigating split brain research is detailed and appropriate. The answer is clear with appropriate use of specialist terminology.</td><td>5–6</td></tr> <tr> <td>2</td><td>Knowledge of procedures and findings of one study investigating split brain research is relevant but detail is lacking. The answer lacks clarity in places. Specialist terminology is occasionally used appropriately. OR description of procedures or findings at level 3.</td><td>3–4</td></tr> <tr> <td>1</td><td>Knowledge of procedures and findings of one study investigating split brain research is very limited. The answer is vague/muddled. Specialist terminology is either absent or inappropriately used. OR description of procedures or findings at level 2.</td><td>1–2</td></tr> <tr> <td>0</td><td>No creditable content.</td><td>0</td></tr> </tbody> </table>	Level	Description	Marks	3	Knowledge of procedures and findings of one study investigating split brain research is detailed and appropriate. The answer is clear with appropriate use of specialist terminology.	5–6	2	Knowledge of procedures and findings of one study investigating split brain research is relevant but detail is lacking. The answer lacks clarity in places. Specialist terminology is occasionally used appropriately. OR description of procedures or findings at level 3.	3–4	1	Knowledge of procedures and findings of one study investigating split brain research is very limited. The answer is vague/muddled. Specialist terminology is either absent or inappropriately used. OR description of procedures or findings at level 2.	1–2	0	No creditable content.	0	6 AO1 = 6
Level	Description	Marks															
3	Knowledge of procedures and findings of one study investigating split brain research is detailed and appropriate. The answer is clear with appropriate use of specialist terminology.	5–6															
2	Knowledge of procedures and findings of one study investigating split brain research is relevant but detail is lacking. The answer lacks clarity in places. Specialist terminology is occasionally used appropriately. OR description of procedures or findings at level 3.	3–4															
1	Knowledge of procedures and findings of one study investigating split brain research is very limited. The answer is vague/muddled. Specialist terminology is either absent or inappropriately used. OR description of procedures or findings at level 2.	1–2															
0	No creditable content.	0															

Question	Marking Guidance	Total Marks															
06	Explain the process of synaptic transmission. Possible content • Transmission of nerve impulses across the synapse is chemical. Stored in vesicles within the pre-synaptic terminal are neurotransmitters. • Electrical nerve impulses travel down the axon and when they reach the axon terminal, they stimulate the release of neurotransmitter molecules into the synaptic gap. • The molecules diffuse across the synaptic gap to the post-synaptic neuron and lock into synaptic receptors. • The post-synaptic neuron converts the neurotransmitters to an electrical impulse to travel down to the next pre-synaptic terminal. • Some neurotransmitters (eg serotonin) increase the negative charge on the post-synaptic neuron; this decreases the chance that the neuron will fire and pass on the electrical impulse (inhibition). • Some neurotransmitters (eg adrenaline) increase the positive charge on the post-synaptic neuron; this increases the chance that the neuron will fire and pass on the electrical impulse (excitation). Credit other relevant material, eg summation. <table border="1"> <thead> <tr> <th>Level</th><th>Description</th><th>Marks</th></tr> </thead> <tbody> <tr> <td>3</td><td>Knowledge of synaptic transmission is detailed and appropriate. The answer is clear with appropriate use of specialist terminology.</td><td>5–6</td></tr> <tr> <td>2</td><td>Knowledge of synaptic transmission is relevant but detail is lacking. The answer lacks clarity in places. Specialist terminology is occasionally used appropriately.</td><td>3–4</td></tr> <tr> <td>1</td><td>Knowledge of synaptic transmission is very limited. The answer is vague/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	3	Knowledge of synaptic transmission is detailed and appropriate. The answer is clear with appropriate use of specialist terminology.	5–6	2	Knowledge of synaptic transmission is relevant but detail is lacking. The answer lacks clarity in places. Specialist terminology is occasionally used appropriately.	3–4	1	Knowledge of synaptic transmission is very limited. The answer is vague/muddled. Specialist terminology is either absent or inappropriately used.	1–2	0	No creditable content.	0	6 AO1 = 6
Level	Description	Marks															
3	Knowledge of synaptic transmission is detailed and appropriate. The answer is clear with appropriate use of specialist terminology.	5–6															
2	Knowledge of synaptic transmission is relevant but detail is lacking. The answer lacks clarity in places. Specialist terminology is occasionally used appropriately.	3–4															
1	Knowledge of synaptic transmission is very limited. The answer is vague/muddled. Specialist terminology is either absent or inappropriately used.	1–2															
0	No creditable content.	0															

Question	Marking Guidance	Total Marks												
07	Sarita is about to sing in a concert. Before the concert, she notices that her mouth is dry and her heart is beating very fast. Sarita feels sick and is unable to eat. After the concert, her breathing slows down and she feels hungry and tired. Use your knowledge of the autonomic nervous system to explain Sarita's experiences before and after the concert. Possible application includes • Sarita's experiences are due to the action of the sympathetic and parasympathetic sections of the autonomic nervous system (ANS). • The ANS is responsible for Sarita's arousal which is caused by the fight or flight response in a time of stress/anxiety. This is initiated by her performance in the concert. • Before the concert, the sympathetic section of the ANS slows down digestion so Sarita feels nauseous and is unable to eat. • Due to the action of adrenalin, her heart rate increases in order to distribute oxygen/other resources around the body. This is to release energy for fight or flight. • After the concert, the parasympathetic action of the ANS restores function to normal ('rest and digest') when the threat/anxiety has passed (the concert is over), so Sarita is tired and feels hungry. • Her breathing slows down due to the adrenalin action being reduced because the threat is over and the body does not need to pump extra oxygen around the body. Credit other relevant material. <table border="1" data-bbox="300 1352 1326 2033"> <thead> <tr> <th>Level</th><th>Description</th><th>Marks</th></tr> </thead> <tbody> <tr> <td>3</td><td>Application of knowledge of the autonomic nervous system to explain Sarita's experiences before and after the concert is detailed and effective. The answer is clear with appropriate use of specialist terminology.</td><td>5–6</td></tr> <tr> <td>2</td><td>Application of knowledge of the autonomic nervous system to explain Sarita's experiences before and after the concert is relevant but detail is lacking. The answer lacks clarity in places. Specialist terminology is occasionally used appropriately. OR application only to Sarita's experiences before or after the concert at level 3.</td><td>3–4</td></tr> <tr> <td>1</td><td>Application of knowledge of the autonomic nervous system to explain Sarita's experiences before and/or after the concert is very limited. The answer is</td><td>1–2</td></tr> </tbody> </table>	Level	Description	Marks	3	Application of knowledge of the autonomic nervous system to explain Sarita's experiences before and after the concert is detailed and effective. The answer is clear with appropriate use of specialist terminology.	5–6	2	Application of knowledge of the autonomic nervous system to explain Sarita's experiences before and after the concert is relevant but detail is lacking. The answer lacks clarity in places. Specialist terminology is occasionally used appropriately. OR application only to Sarita's experiences before or after the concert at level 3.	3–4	1	Application of knowledge of the autonomic nervous system to explain Sarita's experiences before and/or after the concert is very limited. The answer is	1–2	6 AO2 = 6
Level	Description	Marks												
3	Application of knowledge of the autonomic nervous system to explain Sarita's experiences before and after the concert is detailed and effective. The answer is clear with appropriate use of specialist terminology.	5–6												
2	Application of knowledge of the autonomic nervous system to explain Sarita's experiences before and after the concert is relevant but detail is lacking. The answer lacks clarity in places. Specialist terminology is occasionally used appropriately. OR application only to Sarita's experiences before or after the concert at level 3.	3–4												
1	Application of knowledge of the autonomic nervous system to explain Sarita's experiences before and/or after the concert is very limited. The answer is	1–2												

		vague/muddled. Specialist terminology is either absent or inappropriately used. OR application only to Sarita's experiences before or after the concert at level 2.		
	0	No creditable content.	0	

Section B: Cognitive Development

Total for this section: 30 marks

Question	Marking Guidance	Total Marks
08	What is meant by a schema? Award 1 mark for an outline of a schema. A schema is a mental representation of objects, actions and situations that enables us to organise our knowledge. Accept alternative wording.	1 AO1 = 1

Question	Marking Guidance	Total Marks															
09	Piaget suggested that there are four stages of intellectual development in his theory of cognitive development. Describe the second stage of Piaget's theory. Content • The second stage is the pre-operational stage, from 2–7 years. • Language emerges and enables the child to use words as symbols for objects, however, the child is unable to reason. • The child understands object permanence, that objects continue to exist even when they are out of sight. • This stage is characterised by certain cognitive limitations which are mental tasks that the child appears unable to do. • The child is egocentric and unable to see the world from another viewpoint. • The child does not understand class-inclusion and is unable to work out how categories of objects relate to one another. • The child does not understand conservation and is unable to understand that quantity remains the same despite changes in appearance. Credit other relevant material. <table border="1"> <thead> <tr> <th>Level</th><th>Description</th><th>Marks</th></tr> </thead> <tbody> <tr> <td>3</td><td>Knowledge of the second stage of Piaget's theory is detailed and appropriate. The answer is clear with appropriate use of specialist terminology.</td><td>5–6</td></tr> <tr> <td>2</td><td>Knowledge of the second stage of Piaget's theory is relevant but detail is lacking. The answer lacks clarity in places. Specialist terminology is occasionally used appropriately.</td><td>3–4</td></tr> <tr> <td>1</td><td>Knowledge of the second stage of Piaget's theory is very limited. The answer is vague/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	3	Knowledge of the second stage of Piaget's theory is detailed and appropriate. The answer is clear with appropriate use of specialist terminology.	5–6	2	Knowledge of the second stage of Piaget's theory is relevant but detail is lacking. The answer lacks clarity in places. Specialist terminology is occasionally used appropriately.	3–4	1	Knowledge of the second stage of Piaget's theory is very limited. The answer is vague/muddled. Specialist terminology is either absent or inappropriately used.	1–2	0	No creditable content.	0	6 AO1 = 6
Level	Description	Marks															
3	Knowledge of the second stage of Piaget's theory is detailed and appropriate. The answer is clear with appropriate use of specialist terminology.	5–6															
2	Knowledge of the second stage of Piaget's theory is relevant but detail is lacking. The answer lacks clarity in places. Specialist terminology is occasionally used appropriately.	3–4															
1	Knowledge of the second stage of Piaget's theory is very limited. The answer is vague/muddled. Specialist terminology is either absent or inappropriately used.	1–2															
0	No creditable content.	0															

Question	Marking Guidance	Total Marks
10	In a study, monkey A watches monkey B pick up a banana. While this is happening, the brain activity of both monkeys is being measured. The researchers find that the same brain areas are active in both monkeys, even though monkey A does not move. Using your knowledge of mirror neurons, explain why monkey A has the same brain activity as monkey B. Award marks as follows 3 marks: The application of knowledge of mirror neurons to the monkeys is detailed. The answer is clear with appropriate use of specialist terminology. 2 marks: The application of knowledge of mirror neurons to the monkeys lacks detail. The answer lacks clarity in places. 1 mark: The application of knowledge of mirror neurons to the monkeys is briefly presented. The answer is very limited/vague/muddled. Content • The mirror neurons of monkey A are activated when it watches the motor act/behavior of monkey B. In this case monkey B's hand moving towards and picking up the banana. • Even though monkey A does not produce any action/motor behaviour, their brain responds as if they also picked up the banana by firing the same/matching neurons as monkey B. • Neural mirroring action supposedly enables monkey A to identify the goal or intention it would have if personally carrying out the behaviour observed, so monkey A can understand the intentions of monkey B. Credit other relevant material.	3 AO2 = 3

Question	Marking Guidance	Total Marks									
11	Psychologists have suggested that in order to understand the behaviour of other people we have to develop theory of mind. Describe and evaluate theory of mind as an explanation for social cognition. Possible content - Concerns the development of a child's understanding of the social world. - Refers to the ability to put oneself mentally in someone else's place, and to guess what they may feel and know. - It usually develops at the age of 4 years. - Description of Sally-Anne studies (Baron-Cohen, Leslie & Frith, 1985). - Description of research using false belief task, eg Maxi test (Wimmer and Perner, 1983) and/or appearance reality task, eg smarties task (Perner, Leekam & Wimmer, 1987). Credit description of theory of mind as well as relevant research studies. Possible evaluation - Research is carefully controlled, eg children selected with matched mental ages, use of standardised procedures. - Requires participants to have sufficiently developed language skills – not suitable for very young children or severely autistic children. - Evidence from supporting research, eg meta-analysis of 178 studies by Wellman et al, 2001. - Generalisation issues using a sample of neurodiverse children, eg children on autism spectrum. - Individual differences/nurture – children from larger and/or more affluent families outperform their peers suggesting an environmental influence on theory of mind development. Credit other relevant material. Note: Methodological issues in studies can be credited if they refer back to theory of mind. <table border="1"> <thead> <tr> <th>Level</th><th>Description</th><th>Marks</th></tr> </thead> <tbody> <tr> <td>4</td><td>Knowledge of theory of mind 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 used effectively.</td><td>16–20</td></tr> <tr> <td>3</td><td>Knowledge of theory of mind 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 used appropriately.</td><td>11–15</td></tr> </tbody> </table>	Level	Description	Marks	4	Knowledge of theory of mind 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 used effectively.	16–20	3	Knowledge of theory of mind 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 used appropriately.	11–15	20 AO1 = 8 AO3 = 12
Level	Description	Marks									
4	Knowledge of theory of mind 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 used effectively.	16–20									
3	Knowledge of theory of mind 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 used appropriately.	11–15									

	2	Limited knowledge of theory of mind is present. Any evaluation is of limited effectiveness. The answer lacks clarity, accuracy and organisation in places. Specialist terminology is occasionally used appropriately.	6–10	
	1	Knowledge of theory of mind 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.	1–5	
	0	No creditable content.	0	

Section C: Research Methods 1

Total for this section: 30 marks

	A university professor is worried about her students' learning in lectures. One behaviour she is concerned about is their use of phones. She asks a psychologist to investigate student behaviour during a 45-minute lecture. Her students all agree to be part of this investigation and provide fully informed consent. They are aware that the psychologist is using video cameras to film the lecture. Afterwards, the professor gives the students a test on the content covered in the lecture. The psychologist then watches the film and analyses the students' behaviour. The psychologist records the time (in minutes) that any student spends using their phone.	
--	--	--

Question	Marking Guidance	Total Marks
12	Identify two observation techniques that are used in this investigation. Shade two boxes. Answer key: C Naturalistic D Overt	2 AO2 = 2

Question	Marking Guidance	Total Marks
13.1	What is meant by the term pilot study? Award 1 mark for a brief description of a pilot study. Possible content • A pilot study is a preliminary small-scale trial/test run. Credit alternative wording.	1 AO1 = 1

Question	Marking Guidance	Total Marks
13.2	Explain why it would be useful to carry out a pilot study before this investigation. Award marks as follows: 2 marks for a clear explanation of why the psychologist should carry out a pilot study first. 1 mark for a limited/vague/muddled explanation of why the psychologist should carry out a pilot study first. Possible application • To check if the cameras are able to record the students' behavior, eg cameras are correctly positioned to record phone use. • To check if the time interval of a 45-minute lecture is appropriate. Credit other relevant material.	2 AO2 = 2

Question	Marking Guidance	Total Marks
14	Identify the sampling method used in this investigation. Briefly explain your answer. Award marks as follows: 1 mark for correctly identifying opportunity sampling/volunteer sampling. 1 further mark for a suitable explanation. • Opportunity: the students of the professor were available at the time because they attended the lecture. • Volunteer: the students have chosen to attend a lecture even though they knew that they would be filmed. Credit other relevant material, eg self-selecting.	2 AO2 = 2

Question	Marking Guidance	Total Marks
15.1	What is meant by the term population in psychological research? Award marks as follows: 2 marks for a clear description of what population means in psychological research. 1 mark for a muddled or vague description of what population means in psychological research. Possible content • The population is a group of people a researcher wants to study. • The population is the wider group of people to whom the findings of a study should apply. • The population should be represented by the sample in order to be able to generalise the results.	2 AO1 = 2

Question	Marking Guidance	Total Marks
15.2	Identify the population in this investigation. Award 1 mark for students (at that university).	1 AO2 = 1

Question	Marking Guidance	Total Marks
16	Protection from harm and confidentiality are two ethical issues. Explain why the psychologist needs to consider protection from harm and confidentiality in this investigation. For each ethical issue, award marks as follows: 1 mark for identifying a relevant problem associated with the ethical issue. AND 1 mark for elaboration of the problem in the context of the scenario. Possible content Protection from harm • The students may feel obliged to take part (despite feeling uncomfortable) because they are being asked by their own professor. • The students may feel that they cannot leave the study because they would miss their lecture/professor might think they are rude. • The students may feel anxious/embarrassed because the psychologist may see what is in their messages/other people may see their test score/they feel uncomfortable being watched. Confidentiality • The students can be identified because the lecture is being filmed (and the professor knows them). • The private content of their messages might be seen because the position of the cameras may show their phone screen. • Other people may see their test results if they are displayed publicly (so it is not private). Credit other relevant material. Note: if no other creditworthy material award a maximum of 1 mark for the need for wider consideration of ethical issues, eg reputation/funding.	4 AO2 = 4

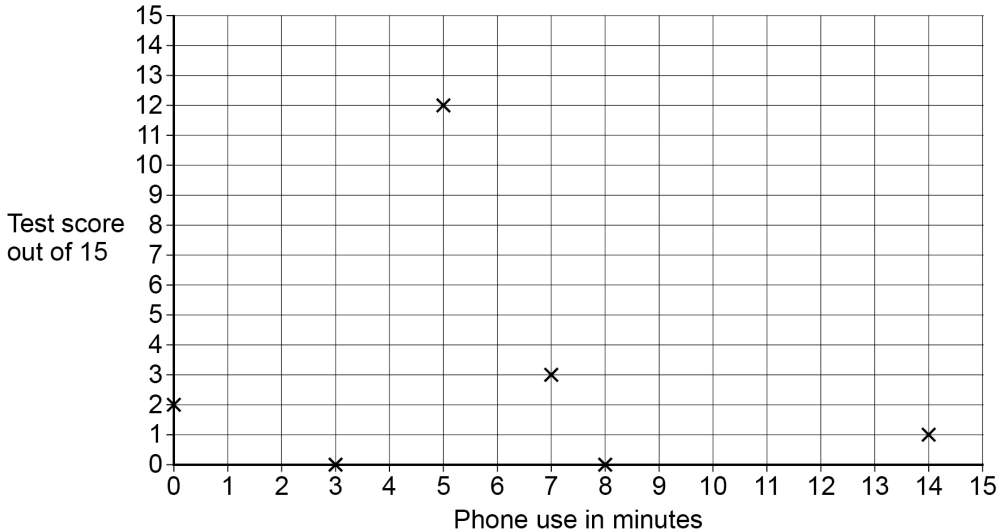
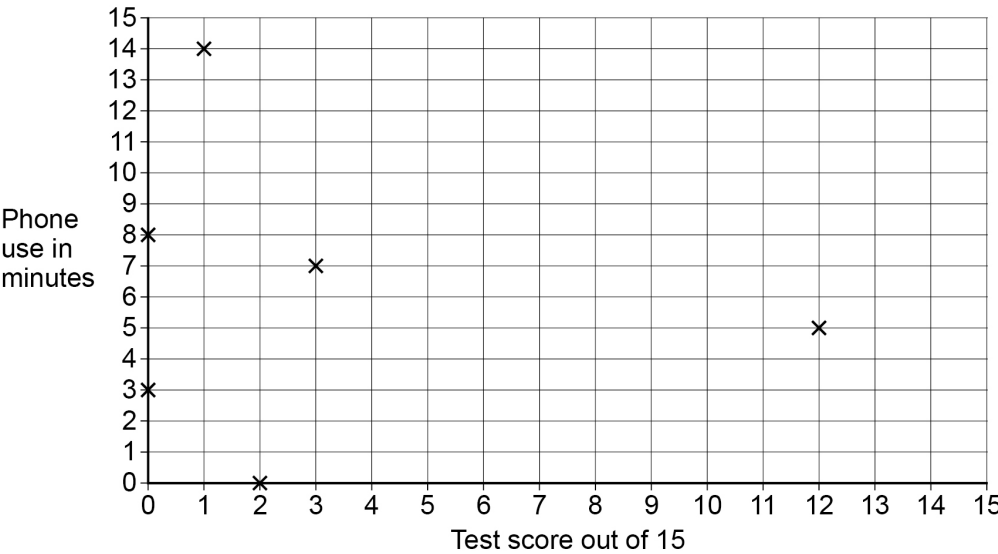
Question	Marking Guidance	Total Marks
17	The psychologist records the time in minutes each student spends on their phone during the 45-minute lecture. Suggest one other operationalised behavioural category the psychologist might use in this investigation. Award marks as follows: 2 marks for an operationalised behavioural category. 1 mark for a muddled or vague behavioural category. Possible content • Number of times the phone was checked (during the lecture). • Number of messages sent/received (during the lecture). • Time spent in minutes note-taking (during the lecture). • Time spent in minutes chatting (during the lecture). • Number of questions asked (during the lecture). Credit other relevant material.	2 AO2 = 2

Question	Marking Guidance	Total Marks
18	Identify one type of data the psychologist collected. Briefly explain your choice. Award marks as follows: 1 mark for identifying primary data or quantitative data. 1 further mark for correctly explaining the choice. Possible content • Primary data: By filming and analysing their own data, the psychologist collected first-hand data. • Quantitative data: eg the time using the phone in minutes is quantitative data as it is numerical data. Credit other relevant material, eg interval data.	2 AO2 = 2

Table 1 shows the data of six students. The psychologist analysed this by correlating their test scores (out of 15) with the times spent on their phones.

Table 1 A table to show phone use (in minutes) and test score (out of 15) for six students

Student	Phone use (in minutes)	Test score (out of 15)
1	14	1
2	5	12
3	0	2
4	8	0
5	3	0
6	7	3

Question	Marking Guidance	Total Marks
19.1	Using the information from Table 1, draw an appropriate graph to display the data. You should include a title and label your graph appropriately. Award marks as follows: 1 mark for an accurate title, eg relationship of test score (out of 15) and phone use (in minutes). 2 marks for labelling and scaling axes with units: 1 mark each axis: phone use in minutes; test score out of 15. 1 mark for correctly plotting the data.	4 AO2 = 4
Relationship between test score (out of 15) and phone use (in minutes)  Relationship between phone use (in minutes) and test score (out of 15) 		

Question	Marking Guidance	Total Marks
19.2	What does the graph you have drawn in Question 19.1 suggest? Award marks as follows: 1 mark for stating that there is no/zero correlation. AND 1 mark for describing that the time spent on the phone (in minutes) does not correlate/has no relationship with the test score (out of 15) obtained/there is no identifiable pattern between time spent on the phone and test score.	2 AO2 = 2

Question	Marking Guidance	Total Marks
20.1	Using the data in Table 1, calculate the median test score. Show your workings. Award marks as follows: 2 marks: Correct median of 1.5. 1 mark: One correct step even if the median is incorrect. • 0, 0, 1, 2, 3, 12. • $1 + 2 = 3$ • $3 / 2 = 1.5$ The median is 1.5	2 AO2 = 2

Question	Marking Guidance	Total Marks
20.2	Explain why the range may not be a representative measure of dispersion for the test scores in Table 1. Award marks as follows 2 marks for a clear explanation of why the range may not be a representative measure of dispersion for the test scores. 1 mark for a muddled or vague explanation of why the range may not be a representative measure of dispersion for the test scores. Possible content • The range is not an appropriate measure of dispersion as the test score of 12 is an outlier and outliers distort the range. All the other scores are much lower, between 0–3. Credit other relevant material.	2 AO2 = 2

Question	Marking Guidance	Total Marks
21	Apart from ethical issues, briefly explain one limitation of using an observation technique. Award marks as follows 2 marks for a clear explanation of a limitation of an observation technique. 1 mark for a muddled or vague explanation of a limitation of an observation technique. Possible content • In a naturalistic observation it can be difficult to control variables, and therefore one cannot establish cause and effect. • The data collected may require interpretation and may be subject to observer bias or effect. • An overt observation can have issues with demand characteristics as participants might change their behaviour. Credit other relevant material. Note: Do not credit ethical issues.	2 AO3 = 2

PS02 grid

	AO1	AO2	AO3	Total
Section A				
01	2			2
02	4			4
03		2		2
04			4	4
05	6			6
06	6			6
07		6		6
Section B				
08	1			1
09	6			6
10		3		3
11	8		12	20
Section C				
12		2		2
13.1	1			1
13.2		2		2
14		2		2
15.1	2			2
15.2		1		1
16		4		4
17		2		2
18		2		2
19.1		4		4
19.2		2		2
20.1		2		2
20.2		2		2
21			2	2
Unit total	36	36	18	90