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Mark Scheme (Results)

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Pearson Edexcel International GCE
In Psychology (WPS02)

Paper 2: Biological Psychology, Learning Theories and Development

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General Marking Guidance

- All candidates must receive the same treatment. Examiners must mark the first candidate in exactly the same way as they mark the last.
- Mark schemes should be applied positively. Candidates must be rewarded for what they have shown they can do rather than penalised for omissions.
- Examiners should mark according to the mark scheme not according to their perception of where the grade boundaries may lie.
- There is no ceiling on achievement. All marks on the mark scheme should be used appropriately.
- All the marks on the mark scheme are designed to be awarded. Examiners should always award full marks if deserved, i.e. if the answer matches the mark scheme. Examiners should also be prepared to award zero marks if the candidate's response is not worthy of credit according to the mark scheme.
- Where some judgement is required, mark schemes will provide the principles by which marks will be awarded and exemplification may be limited.
- When examiners are in doubt regarding the application of the mark scheme to a candidate's response, the team leader must be consulted.
- Crossed out work should be marked UNLESS the candidate has replaced it with an alternative response.

Section A

Question Number	Answer	Mark
1	AO1 (3 marks) Credit up to three marks for accurate description. For example: • The neuron has dendrites attached to the cell body to pick up messages from surrounding neurons (1). The messages from other neurons transform into an electrical impulse that passes down the axon (1). When the action potential gets to the terminal button it can release neurotransmitters that cross the synaptic gap, passing on the message (1). Look for other reasonable marking points.	(3)

Question Number	Answer	Mark
2(a)	AO2 (3 marks) Credit up to three marks for accurate description in relation to scenario. For example: • During the winter it is darker so Samadhi's eyes do not receive as much light (1). When it is darker for longer in the winter Samadhi releases more melatonin (1). The extra melatonin makes Samadhi feel sleepy, which is why she goes to bed earlier in the winter months (1) Look for other reasonable marking points. Generic answers score 0 marks.	(3)

Question Number	Answer	Mark
2(b)	AO1 (2 marks), AO3 (2 marks) Credit one mark for accurate identification of one strength and one weakness. (AO1) Credit one mark for justification of one strength and one weakness (AO3) For example: Strength. • Ralph et al (1990) found that hamsters sleep wake cycle changed to the donor hamster's cycle when they were given a transplanted SCN (1) which provides scientific evidence that internal pacemakers have an effect on the sleep-wake cycle (1). Weakness. • A lot of human research into the sleep-wake cycle uses a small sample as they are often case studies (1). Due to the sample being small the findings may only be true for the participants so limiting generalisability to all individuals' internal pacemakers (1). Look for other reasonable marking points.	(4)

Question Number	Answer	Mark
3(a)	AO2 (1 mark) Credit one mark for accurate identification in relation to scenario. For example: • Independent groups design (1). Look for other reasonable marking points.	(1)

Question Number	Answer	Mark
3(b)	AO2 (2 marks) Credit up to two marks for accurate definition in relation to scenario. For example: • Nominal data is collected in categories, Ulrick collected data under the categories of 10 and 15 year olds (1). He will just have the total number of aggressive acts carried out by the two age groups (1). Look for other reasonable marking points. Generic answers score 0 marks.	(2)

Question Number	Answer	Mark
3(c)	AO2 (1 mark) Credit one mark for accurate calculation. • 42.86 (1) Reject all other answers.	(1)

Question Number	Answer	Mark
3 (d)	AO2 (1 mark), AO3 (1 mark) Credit one mark for identification of conclusion in relation to scenario (AO2). Credit one mark for justification in relation to scenario (AO3). For example: • Ulrick could conclude that age does not affect the number of aggressive acts carried out (1) as the fifteen year olds commit 4 aggressive acts compared to the 3 acts on average carried out by the ten year olds (1). Look for other reasonable marking points.	(2)

Question Number	Answer	Mark
4	AO2 (4 marks) Credit up to four marks for accurate description in relation to scenario. For example: • Beryl's menstrual cycle is an infradian rhythm lasting as it lasts thirty days. (1) The lining of Beryl's womb will start to thicken in preparation for a fertilised egg due to an increase in hormones (1). If Beryl is not pregnant then her hormones will fall she will menstruate. (1) The fluctuation in her oestrogen and progesterone levels are thought to be the cause of her PMS which explains why she becomes more argumentative towards the end of her cycle (1). Look for other reasonable marking points. Generic answers score 0 marks.	(4)

Question Number	Answer	Mark
5 (a)	AO1 (2 marks) Credit up to two marks for accurate description. For example: • Brendgen et al. (2005) used six year old twins from the Montreal area (1). The majority of twins were of European descent, with 2% being from native north American descent (1). Look for other reasonable marking points.	(2)

Question Number	Answer	Mark
5(b)	AO1 (2 marks), AO3 (2 marks) Credit one mark for accurate identification of one strength and one weakness. (AO1) Credit one mark for justification of one strength and one weakness. (AO3) For example: Strength. • Aggression of the twins was rated by both teachers and peers with virtually the same results (1) which shows that both teachers and peers are accurately rating the aggression of the twins, and gives the study increased reliability (1). Weakness. • The participants were all aged six years old so the sample is not representative of other ages (1), therefore the results may not be generalisable, especially as it is thought physical aggression reduces with age (1). Look for other reasonable marking points.	(4)

Question Number	Indicative content	Mark
6	AO1 (4 marks), AO3 (4 marks) AO1 • We carried out a correlation to see if there was a relationship between how old people are and the number of hours sleep they have a night. • To gather the data we gave our participants a questionnaire asking them how long they slept for every night and their age. • We gathered our participants through opportunity sample and had a total of fifty, 25 males and 25 females. • We found that there was a significant negative correlation between the number of hours slept every night and the age of the participants. AO3 • As it was a correlation we do not know if getting older decreases the amount of sleep people have as we did not investigate cause and effect. • Participants may have lied on the questionnaire as they may not want to admit their age. • A sample size of fifty is large, and therefore we can say they are representative of the age range being studied, so the results are generalisable. • As we found a negative we can apply these results and tell nursing homes not to put their clients to bed too early. Look for other reasonable marking points.	(8)

Level	Mark	Descriptor
AO1 (4 marks), AO3 (4 marks) Candidates must demonstrate an equal emphasis between knowledge and understanding vs evaluation/conclusion in their answer.		
	0	No rewardable material.
Level 1	1-2 Marks	Demonstrates isolated elements of knowledge and understanding. (AO1) A conclusion may be presented, but will be generic and the supporting evidence will be limited. Limited attempt to address the question. (AO3)
Level 2	3-4 Marks	Demonstrates mostly accurate knowledge and understanding. (AO1) Candidates will produce statements with some development in the form of mostly accurate and relevant factual material, leading to a superficial conclusion being made. (AO3)
Level 3	5-6 Marks	Demonstrates accurate knowledge and understanding. (AO1) Arguments developed using mostly coherent chains of reasoning, leading to a conclusion being presented. Candidates will demonstrate a grasp of competing arguments but evaluation may be imbalanced. (AO3)
Level 4	7-8 Marks	Demonstrates accurate and thorough knowledge and understanding. (AO1) Displays a well-developed and logical evaluation, containing logical chains of reasoning throughout. Demonstrates an awareness of competing arguments, presenting a balanced conclusion. (AO3)

Section B

Question Number	Answer	Mark
7(a)	AO2 (4 marks) Credit up to four marks for an accurate description in relation to scenario. For example: • Andrija should first get the cat used to his name, so call the cat's name and give him a cat treat if the cat looks up at him (1). Andrija will gradually increase what the cat has to do until the cat only gets a treat when he comes into the house (1). As well as using positive reinforcement Andrija could use negative reinforcement, so when the cat comes he could stop shouting (1). If the cat does not come when it is called Andrija could punish it by not petting the cat when it does return (1). Look for other reasonable marking points. Generic answers score 0 marks.	(4)

Question Number	Answer	Mark
7(b)	AO2 (1 mark), AO3 (1 mark) Credit one mark for accurate identification of one weakness in relation to scenario. (AO2) Credit one mark for justification of one weakness. (AO3) For example; • Andrija's son may think that the positive reinforcement he receives for making his bed is not as desirable as the time gained for not making his bed (1), the son will not be motivated to learn how to make his bed as he does not feel he is gaining a reward for doing so (1). Look for other reasonable marking points. Generic answers score 0 marks.	(2)

Question Number	Answer	Mark
8(a)	AO2 (1 mark) Credit one mark for accurate calculation. • 4.63 Reject all other answers.	(1)

Question Number	Answer	Mark
8 (b)	AO2 (1 mark), AO3 (1 mark) Credit one mark for an accurate interpretation in relation to the scenario (AO2). Credit one mark for accurate justification in relation to scenario (AO3). For example: • There was a greater spread of helping behaviours before the television programme was shown compared to after the television programme was shown (1), as the range is three less for after the television programme is shown (1). Look for other reasonable marking points. Generic answers score 0 marks.	(2)

Question Number	Answer	Mark
8(c)	AO1 (2 marks) AO3 (2 marks) Credit up to two marks for accurate identification of comparison (AO1) Credit up to two marks for exemplification of comparison (AO3) For example: • Both types of data are numerical (1), therefore descriptive statistics can be carried out on both types of data (1). • Ordinal data does not have an equal gap between the numbers whilst interval data there is an equal gap between each unit of measurement (1), this make ordinal data more simplistic and less detailed than interval data (1). Look for other reasonable marking points.	(4)

Question Number	Answer	Mark
9(a)	AO1 (1 mark) Credit one mark for accurate identification of unconditioned stimulus. For example: • The hammer hitting the steel bar (1). Look for other reasonable marking points.	(1)

Question Number	Answer	Mark
9 (b)	AO1 (2 marks), AO3 (2 marks) Credit up to two marks for accurate identification of weaknesses. (AO1) Credit up to two marks for justification of weaknesses. (AO3) For example: • The mother may have felt she had to give consent (1), as she worked as a wet nurse at the hospital where the study took place (1). • The study breaks the ethical guideline of causing distress (1) as Little Albert cried whenever he saw the rat after the conditioning took place, so he was clearly distressed (1). Look for other reasonable marking points.	(4)

Question Number	Answer	Mark
9 (c)	AO1 (1 mark), AO3 (1 mark) Credit one mark for accurate identification of improvement. (AO1) Credit one mark for justification of improvement (AO3) For example: • Watson and Rayner could have used a larger number of participants instead of just one (1) as a larger sample would have made the study more representative so they could more accurately conclude fear could be classically conditioned (1). Look for other reasonable marking points.	(2)

Question Number	Answer	Mark
10 (a)	AO2 (2 marks) Credit one mark for each accurate identification in relation to the scenario. For example: • Brigita's mother is the same gender as Brigita so could be her role model (1). • Brigita is vicariously reinforced as her father says how nice her mother looks (1). Look for other reasonable marking points. Generic answers score 0 marks.	(2)

Question Number	Answer	Mark
10 (b)	AO1 (2 marks), AO3 (2 marks) Credit one mark for accurate identification of one strength and one weakness. (AO1) Credit one mark for justification of one strength and one weakness. (AO3) For example: Strength. • Social learning theory is a more complete theory than other learning theories (1), as it can explain how new behaviour is learnt without the need for someone to actively teach the new behaviour (1). Weakness. • Research on social learning theory, such as Bandura, Ross and Ross (1961), tends to be done in laboratories (1), which means the behaviour may not transfer to the real world, so reducing validity (1). Look for other reasonable marking points.	(4)

Question Number	Indicative content	Mark
11	AO1 (4 marks), AO2 (4 marks) AO1 • Psychoanalysis aims to gain insight into unconscious processes. • Psychoanalysis uses dream interpretation to understand the unconscious by understanding what the symbols represent. • The psychoanalyst will use free association to explore issues with the client's childhood. • Transference involves putting the feelings from previous relationships e.g. parents onto your analyst. AO2 • Olaf would be able to resolve his problem with his manager once he understands how his unconscious is driving his behaviour. • Olaf may have a dream about his new manager, but she may be disguised as a female dog. • Lotte will ask Olaf to talk freely about his childhood to discover if there were any issues with his mother which may affect his present behaviour. • Lotte may find that Olaf has negative feelings about her, which are actually the feelings he has about his mother. Look for other reasonable marking points.	(8)

Level	Mark	Descriptor
AO1 (4 marks), AO2 (4 marks) Candidates must demonstrate an equal emphasis between knowledge and understanding vs application in their answer.		
	0	No rewardable material
Level 1	1–2 Marks	Demonstrates isolated elements of knowledge and understanding. (AO1) Provides little or no reference to relevant evidence from the context (scientific ideas, processes, techniques and procedures). (AO2)
Level 2	3–4 Marks	Demonstrates mostly accurate knowledge and understanding. (AO1) Discussion is partially developed, but is imbalanced or superficial occasionally supported through the application of relevant evidence from the context (scientific ideas, processes, techniques and procedures). (AO2)
Level 3	5–6 Marks	Demonstrates accurate knowledge and understanding. (AO1) Arguments developed using mostly coherent chains of reasoning. Candidates will demonstrate a grasp of competing arguments but discussion may be imbalanced or contain superficial material supported by applying relevant evidence from the context (scientific ideas, processes, techniques and procedures (AO2)
Level 4	7–8 Marks	Demonstrates accurate and thorough knowledge and understanding. (AO1) Displays a well-developed and logical balanced discussion, containing logical chains of reasoning. Demonstrates a thorough awareness of competing arguments supported throughout by sustained application of relevant evidence from the context (scientific ideas, processes, techniques or procedures). (AO2)

Section C

Question Number	Indicative content	Mark
12	AO1 (6 marks), AO3 (6 marks) AO1 • Russell (1980) used pheromones and found that four out of five women synchronised their menstrual cycle to the menstrual cycle of the donor woman. • Dalton (1964) found that PMS can affect female behaviour as it is associated with an increase in accidents and crime. • Murphy et al (1993) found that light therapy can reduce the release of melatonin. • McClintock (1971) concluded that male pheromones reset a females infradian rhythms and increase ovulation, which he stated has an evolutionary advantage. • Research into infradian rhythms often collect objective, numerical data. • Research into infradian rhythms using humans is often done as case studies, or using small samples. AO3 • Russell (1980) used a single blind study, so the women did not know which group they were in, adding control to the study and so increasing reliability. • Dalton's (1964) study only found an association, not a cause and effect so it may not be PMS that causes the changes in female behaviour. • The use of case studies means that the data is from an individual so there may be something unique about that person, meaning the results are not generalisable. • Research into the use of light therapy has led to the use of light boxes for people who have seasonal affective disorder, to help reduce their symptoms. • It is hard to prove that a change in infradian rhythms leads to an evolutionary advantage as it is hard to scientifically test the ideas due to evolution happening over several centuries. • As the data is usually objective then the studies can be seen as scientific, and reliable as the data is fact and not open to interpretation. Look for other reasonable marking points.	(12)

Level	Mark	Descriptor
Candidates must demonstrate an equal emphasis between knowledge and understanding vs evaluation/conclusion in their answer.		
	0	No rewardable material.
Level 1	1-3 Marks	Demonstrates isolated elements of knowledge and understanding. (AO1) A conclusion may be presented, but will be generic and the supporting evidence will be limited. Limited attempt to address the question. (AO3)
Level 2	4-6 Marks	Demonstrates mostly accurate knowledge and understanding. (AO1) Candidates will produce statements with some development in the form of mostly accurate and relevant factual material, leading to a superficial conclusion being made. (AO3)
Level 3	7-9 Marks	Demonstrates accurate knowledge and understanding. (AO1) Arguments developed using mostly coherent chains of reasoning leading to a conclusion being presented. Candidates will demonstrate a grasp of competing arguments but evaluation may be imbalanced. (AO3)
Level 4	10-12 Marks	Demonstrates accurate and thorough knowledge and understanding. (AO1) Displays a well-developed and logical evaluation, containing logical chains of reasoning throughout. Demonstrates an awareness of competing arguments, presenting a balanced conclusion. (AO3)

Question Number	Indicative content	Mark
13	AO1 (6 marks), AO2 (4 marks), AO3 (6 marks) AO1 • There are several types of scanning techniques including CAT, PET and fMRI. • CAT scans pass multiple x-rays around the head, from different angles. • PET scans use gamma rays to produce a computer image that shows the brain as it is active. • Freud's use of case studies involved gaining detailed data about individual patients. • Freud used a variety of methods to gather his data including dream analysis and free association. • Freud's case studies only gathered qualitative data from what his clients said. AO2 • Brianna could use a PET scan as it will show if the patient has any abnormally high/low activity in the brain. • Brianna may use an fMRI scan as long as the patient does not have a pacemaker. • Finnian would listen to the manifest content of the patient's dreams in order to understand what the symbols represented. • Finnian should sit behind the patient so that when the patient is talking they are not put off by any non-verbal cues Finnian may show. AO3 • CAT scans are not suitable for everyone as they use x-rays which expose patients to radiation, so the benefits versus the risks need to be weighed up. • fMRI scans may be better than PET scans as they are non-invasive and do not involve the use of radioactive glucose. • fMRI scans may be stressful for some patients as they are in a confined space and the patient cannot move whilst the scan is taking place. • The use of case studies allows therapists to gain in depth detailed data about the childhood experiences of the patient. • The data from dream analysis has to be interpreted, and this is a subjective process, so different analysts may give different interpretations. • Scans are considered more scientific as they gather objective data, but the use of case studies may be more useful if the issue is due to childhood experiences. Look for other reasonable marking points.	(16)

Level	Mark	Descriptor
Candidates must demonstrate an equal emphasis between knowledge and understanding vs assessment/conclusion in their answer. Application to the context is capped at maximum 4 marks.		
	0	No rewardable material.
Level 1	1–4 Marks	Demonstrates isolated elements of knowledge and understanding. (AO1) Provides little or no reference to relevant evidence from the context (scientific ideas, processes, techniques and procedures). (AO2) Generic assertions may be presented. Limited attempt to address the question. (AO3)
Level 2	5–8 Marks	Demonstrates mostly accurate knowledge and understanding. (AO1) Line(s) of argument occasionally supported through the application of relevant evidence from the context (scientific ideas, processes, techniques and procedures). (AO2) Candidates will produce statements with some development in the form of mostly accurate and relevant factual material, leading to a generic or superficial assessment being presented. (AO3)
Level 3	9–12 Marks	Demonstrates accurate knowledge and understanding. (AO1) Line(s) of argument supported by applying relevant evidence from the context (scientific ideas, processes, techniques and procedures). Might demonstrate the ability to integrate and synthesise relevant knowledge. (AO2) Arguments developed using mostly coherent chains of reasoning, leading to an assessment being presented which considers a range of factors. Candidates will demonstrate understanding of competing arguments/factors but unlikely to grasp their significance. The assessment leads to a judgement but this may be imbalanced. (AO3)
Level 4	13–16 Marks	Demonstrates accurate and thorough knowledge and understanding. (AO1) Line(s) of argument supported throughout by sustained application of relevant evidence from the context (scientific ideas, processes, techniques or procedures). Demonstrates the ability to integrate and synthesise relevant knowledge. (AO2) Displays a well-developed and logical assessment, containing logical chains of reasoning throughout. Demonstrates an awareness of the significance of competing arguments/factors leading to a balanced judgement being presented. (AO3)

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