

A-LEVEL PSYCHOLOGY

(7182)

Marked responses – specimen assessment materials (SAMs) set 3
7182/2

Using Paper 2 from the third set of SAMs, see responses to different types of questions and understand how the mark scheme is applied.

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EXAMPLE RESPONSES



Please note that these responses have been reproduced exactly as they were written and have not been subject to the usual standardisation process.

Section A – Approaches in Psychology

Question

04 Briefly evaluate defence mechanisms as a way of explaining human behaviour and experience.

[4 marks]

Mark scheme

Marks for this question AO3 = 4

Level	Marks	Description
2	3–4	Evaluation is relevant, well explained and focused on use of defence mechanisms to explain behaviour/experience, rather than generic criticism of psychodynamic theory. The answer is generally coherent with effective use of specialist terminology.
1	1–2	Evaluation is relevant although there is limited explanation and/or limited focus defence mechanisms. Specialist terminology is not always used appropriately. Award one mark for answers consisting of a single point briefly stated or muddled.
	0	No relevant content.

Possible evaluation points

- Lack of testability/falsifiability since defence mechanisms are unconscious processes they cannot be studied directly.
- Defence mechanisms can only be inferred from behaviour or from reported thoughts or experiences.
- Use of examples to illustrate and support argument.
- Intuitive appeal – most people can appreciate the idea of denial, repression, displacement.
- Use of evidence to support or contradict the existence of defence mechanisms eg case studies of people who are unable to recall upsetting events. Credit other relevant material.

Student response

One of the problems with defence mechanisms is that they are at an unconscious level and this means they cannot be tested empirically. For example, a key defence mechanism according to Freud is repression, which is a type of unconscious forgetting. If there is something we cannot deal with at present then to prevent it overwhelming us it will be pushed to an unconscious level where it is not accessible. Because it is inaccessible it cannot be investigated scientifically and therefore may or may not exist! An example of something that might be repressed is childhood abuse which was very upsetting at the time. There is some evidence from a study by Williams that women who had been abused as children failed to report this later when interviewed (even though it was on hospital records). This is evidence for the defence mechanism of repression.

Examiner commentary

This is a level 2 response

This is a detailed answer that focuses on the question set. The evaluation is relevant, well explained and focused on the use of the defence mechanism repression to explain behaviour/experience. It considers both criticism of and evidence for the defence mechanism of repression. The answer is generally coherent with effective use of specialist terminology.

Question

- 05 Outline what is meant by cognitive neuroscience and describe **one** practical application of cognitive neuroscience.

[6 marks]

Mark scheme

Marks for this question: AO1 = 4 and AO2 = 2

Level	Marks	Description
3	5–6	Outline of cognitive neuroscience and description of one practical application is generally accurate with some detail. The answer is clear and coherent. Specialist terminology is used effectively.
2	3–4	Outline of cognitive neuroscience and description of one practical application is evident. There are some inaccuracies. There is some appropriate use of specialist terminology.
1	1–2	Outline of cognitive neuroscience and/or description of one practical application is limited and lacks detail. There is substantial inaccuracy/muddle. Specialist terminology is either absent or inappropriately used.
	0	No relevant content.

Possible content

- Scientific study of brain/neurological structures, mechanisms, processes, chemistry that are responsible for cognitive/mental/thinking processes.

Possible applications

- Use of scanning/imaging techniques eg to locate different types of memory in different areas of the brain leading to treatment for memory problems.
- Use of scanning/imaging techniques to study mental processing patients with depression or OCD or in children with autism or dyslexia.
- Use of imaging techniques and angiography to study the effects of normal ageing on the brain or to observe the effects of stroke on the brain.
- Use of computer simulations/computational modelling to test theories or hypotheses about mental processes such as attention, memory, problem solving etc.
- Use of computer modelling to develop voice recognition programmes.
- Use of eye-tracking/motion-tracking to study visual word processing and reading.

Credit other relevant applications.

Student response

Neuroscience is the scientific study of neurons. Neurons are nerve cells which send and receive messages in the brain and CNS. For example motor neurons. These have long axons as they have to stretch all the way down your arms and legs. They send messages to the muscles from the brain. This is done by action potentials which is when electricity is sent down a neuron to another one.

You can study the activity in the brain by using scans such as PET. This works by injecting radioactive material that lights up in the part of the brain that is active. This can be useful when studying OCD because these people have activity in parts of the brain that others do not have as much of. An area in the front of the brain is very active in people with OCD and this has been discovered through the use of PET scans. This part of the brain involves mainly thoughts.

Examiner commentary

This is a level 1 response

The first paragraph in this answer is irrelevant. There is some relevant material regarding PET scans and one practical application (OCD) but this is limited and lacks detail. There is substantial irrelevance and the answer is muddled. There is limited coherent use of specialist terminology.

Question

- 06 Outline Pavlov's research into classical conditioning and describe how classical conditioning might explain a child's fear of school.

[8 marks]

Mark scheme

Marks for this question: AO1 = 3 and AO2 = 5

Level	Marks	Description
4	7–8	Outline of Pavlov's research is generally accurate. Application to fear of school is thorough and effective. The answer is clear, coherent and well focused. Specialist terminology is used effectively. Minor detail and/or expansion sometimes lacking.
3	5–6	Outline of Pavlov's research is evident. Application to fear of school is apparent and mostly effective. The answer is mostly clear and organised. Specialist terminology mostly used effectively. Lacks focus in places.
2	3–4	Outline of Pavlov's research is present. Any application to fear of school is only partly effective. The answer lacks clarity, accuracy and organisation in places. Specialist terminology used inappropriately on occasions.
1	1–2	Outline of Pavlov's research is very limited. Application to fear of school 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.
	0	No relevant content.

Possible content

- Detail of Pavlov's classical conditioning experiments into salivation reflex in dogs.
- Knowledge of Pavlovian concepts in the context of Pavlov's experiments: unconditioned stimulus; conditioned stimulus; unconditioned response; conditioned response.
- Detail of Pavlovian theory – learning by association; temporal association/contiguity.

Possible application

- School is initially a neutral stimulus.
- A fear-arousing event (the unconditioned stimulus) occurs whilst the child is at school eg being bullied in the playground.
- Initially the child experiences fear which is an unconditioned response to the fear-arousing event (eg bullying).
- The fear-arousing event and school are paired together in time (are contiguous).
- Eventually the school becomes a conditioned stimulus which will elicit fear (now a conditioned response) even when the original fear-arousing event is not present.

Credit any sensible application explaining fear of school in Pavlovian terms.

Full credit may be given for an appropriately labelled diagram with some verbal description of the process.

Student response

Classical conditioning is learning by association. This means an animal or human learns to associate something new with something which naturally causes a response. That 'new thing' then causes the same response by itself. Pavlov carried out work with saliva and dogs. Saliva is a reflex response to food and he discovered by chance that the dog began to salivate before the food touched the tongue. He then rang a bell when he presented the food a few times and after a while the ringing of the bell without the food made the dog salivate. The food was the UCS=Unconditioned Stimulus and the saliva the UCR=Unconditioned Response, because this is the original reflex response. The bell is the NS=Neutral Stimulus which becomes the CS=Conditioned Stimulus when it produces the saliva which is then known as the CR=Conditioned Response. A child would not normally be fearful of school but if school becomes associated with a frightening incident (teacher shouting) then the school alone can bring on the fear.

Examiner commentary

This is a level 2 response

The outline of Pavlov's research is clear and detailed. However, the application to fear of school is very brief and therefore only partly effective. The answer is overly descriptive and not focused on the application part of the question. Specialist terminology is used appropriately in the description but only partly applied to the school example, simply using the term 'association'.

Section B – Biopsychology

Question

10 Identify **two** glands that form part of the endocrinal system and outline their functions.

[4 marks]

Mark scheme

Marks for this question: AO1 = 4 marks

Level	Marks	Description
2	3–4	Knowledge of the functions of two glands in the endocrine system is clear and mostly accurate. The answer is generally coherent with effective use of terminology.
1	1–2	Some knowledge of the functions of two glands in the endocrine system is evident. The answer lacks accuracy and detail. Use of terminology is either absent or inappropriate.
	0	No relevant content.

One mark each for identification of glands

Plus

One mark each for description of functions of the glands. This may be in terms of the hormones released and either their regulation of internal organs and processes or an outline of the effects on behaviour.

Possible content

- Pituitary gland releases ACTH, vasopressin, luteinizing hormone. Controls release of hormones from other glands.
- Adrenal gland and adrenaline/noradrenaline, causing physiological changes associated with arousal, fight and flight.

Credit also other glands – pancreas and insulin, ovaries and oestrogen/progesterone, testes and testosterone.

Student response

One gland is the adrenal gland and this is at the top of the kidneys. The adrenal gland produces adrenalin and in an emergency situation adrenalin is responsible for the fight or flight response. Another hormone is testosterone produced in the testises.

Examiner commentary

This is a level 2 response

Two glands in the endocrine system (adrenal and testes (accepted testises as near enough)) are identified and the outline of the function of the adrenal gland is clear and accurate. There is some knowledge of the testes producing testosterone but not enough detail of the function of the gland for both marks. The answer is generally coherent with effective use of terminology.

Question

11 Discuss what research has shown about localisation of function in the brain.

[8 marks]

Mark scheme

Marks for this question: AO1 = 3 and AO3 = 5

Level	Marks	Description
4	7–8	Outline of what research has shown about localisation of function in the brain is accurate and generally well detailed. Discussion is effective. The answer is clear, coherent and focused. Specialist terminology is used effectively. Minor detail and/or expansion of argument sometimes lacking.
3	5–6	Outline of what research has shown about localisation of function in the brain is evident. There are occasional inaccuracies. There is some effective discussion. The answer is mostly clear, organised and focused. Specialist terminology mostly used effectively.
2	3–4	Outline of what research has shown about function in the brain is present. Focus is mainly on description. Any discussion is of limited effectiveness. The answer lacks clarity, accuracy and organisation in places. Specialist terminology used inappropriately on occasions.
1	1–2	Outline what research has shown about of localisation of function in the brain is limited. Discussion is limited, poorly focused or absent. The answer as a whole lacks clarity, has many inaccuracies and is poorly organised. Specialist terminology either absent or inappropriately used.
	0	No relevant content.

Possible content

- Some functions are more localised than others eg somatosensory and motor functions are highly localised to particular areas of cortex.
- Other functions seem more widely distributed eg the language system (though some components may be localised eg speech comprehension).
- Localisation can involve restricted areas of cortex eg motor control, or broader aspects eg right hemisphere visuo-spatial functions.

Possible discussion

- Use of research evidence eg Lashley's classic work on equipotentiality of the cortex; Hubel and Wiesel's work on distributed functions of the visual system.
- Human clinical case studies of loss of specific abilities after restricted brain damage eg aphasia, amnesia.
- Simpler functions are likely to be more localised in the brain, eg motor control as compared with eg personality, consciousness.
- The brain is so complex that no one part acts independently of the rest, so strict localisation is impossible.
- General commentary on whether localisation or "holistic" approaches are more appropriate.
- Limitations of methods/scanning techniques used to investigate localisation.

Credit other relevant material.

Student response

There are two sides to the brain known as hemispheres and these are joined together by the corpus colsum which allows the two brains to communicate. Usually the left side of the brain deals with language and therefore language is said to be localised in the left side. This is known to be the case because damage to an area on the left side towards the front known as Brocas, after the man who discovered it, will mean that speech is effected. Another language area is Wernickers and this is also on the left hand side behind Brocas area. This area is responsible for understanding speech and research has shown that if this area is damaged you can still produce speech but it is jiberish.

A famous case study of an American man who worked on the railway with dynamite is linked to this question. One day there was an explosion at work and an iron rod became stuck in his forehead and through the front of his brain across his eye. He did recover but this accident caused a change of personality. He was a calm and quiet man before the accident but afterwards he became rude and aggressive. This is evidence that because a certain part of his brain was damaged then this caused a change in his behaviour and personality and so these must have been in that part of the brain.

Examiner commentary

This is a level 2 response

There is some reference to appropriate knowledge in this answer with respect to localisation of language. There is limited outline of research (case study of Phineas Gage) and an attempt to link this case study to localisation of function in the brain. The focus is mainly on description. The answer lacks clarity, accuracy and organisation in places. Specialist terminology used inappropriately on occasions.

Question

- 12 Raoul has recently been prescribed a drug for mental illness. He looks on the internet to find out more about the drug but he does not understand the phrase 'synaptic transmission'.

Write a brief explanation of synaptic transmission in the brain to help Raoul understand how his drug might work.

[3 marks]

Mark scheme

Marks for this question: AO2 = 3

Content

1 mark for any three of the following points:

- transmission involves impulses crossing a space or gap between an axon terminus and the adjacent neuron (the synapse/synaptic cleft)
- neurotransmitters are chemicals released from vesicles on the presynaptic neuron
- they travel/diffuse across the synapse and lock onto receptor sites on receiving/postsynaptic neuron
- some neurotransmitters increase the rate of firing in the receiving neurons and others decrease the rate of firing
- psychoactive drugs work by affecting (increasing or inhibiting) the transmission of neurotransmitters across the synapse.

For full marks there must be some reference to drugs affecting synaptic transmission.

Credit diagrams in so far as they contribute to the explanation.

Student response

Synaptic transmission is when messages are passed from neuron to neuron. There is a gap between neurons known as a synapse. An electrical impulse which travels down a neuron causes the release of a neurotransmitter (chemical) from the first neuron at the synaptic bud and across the gap (synapse) to be picked up by another neuron. For Raul his drug could increase or decrease the amount of neurotransmitter at the synapse. For example, if he suffers from depression he might be given an SSRI drug. This works on serotonin neurotransmitter and when the first neuron releases this serotonin it stays longer in the synapse.

Examiner commentary

Mark awarded = 3 marks

There is reference to at least three of the bullet points with some appropriate use of specialist terminology. There is also reference to drugs affecting synaptic transmission.

Section C – Research methods

Question

- 15 Read the item and then answer the questions that follow.

Following previous research indicating the social benefits of green space in urban areas, two psychology students decided to observe social behaviour in public spaces. They focused on two neighbouring towns, Greensville where most public spaces were planted with flowers and vegetables, and Brownton where most public spaces were paved with concrete.

The students compared the instances of considerate behaviours in the two towns. Considerate behaviour categories included putting litter in the bin, having a dog on a lead and riding a bike with care.

The observations were carried out in four different areas of a similar size in each town on weekdays between the hours of 4.30pm and 6.00pm. The students worked together to ensure inter-observer reliability, recording each target behaviour whenever it occurred.

The data for considerate behaviours is shown in **Table 1**.

Table 1

Considerate behaviours			
	Litter in bin	Dog on lead	Riding bike with care
Greensville	23	12	19
Brownton	10	17	9

The students noted that overall more considerate behaviours occurred in Greensville than in Brownton.

The students thought that having a dog on a lead was a useful measure of considerate behaviour because it had face validity. Explain what is meant by face validity in this context.

[3 marks]

Mark scheme

Marks for this question: AO2 = 3

1 mark for knowledge of the term face validity – where a behaviour appears at first sight (on the face of it) to represent what is being measured

Plus

2 marks for clear and coherent application of the concept of face validity to the context

1 mark for brief or muddled application of the concept of face validity to the context

Application: Having a dog on a lead appears at first glance to be measuring considerate behaviour because if a dog is on a lead it is less able/likely to upset other people by coming close, frightening, chasing, biting, growling etc. Credit other relevant applications.

Student response

Having a dog on a lead means that the owner is in control of it and it cannot bite anyone. Sometimes dogs rush at children in prams and frighten them and if it is on a lead the owner can drag it back and this would be considerate so it is face valid.

Examiner commentary

Mark awarded = 0 marks

Although there is some context addressed this is not clearly linked to the concept of face validity and therefore the response does not answer the question.

Question

16 Identify and briefly outline **two** other types of validity in psychological research.

[4 marks]

Mark scheme

Marks for this question: AO1 = 4

1 mark for each of two types of validity identified

Plus

1 mark each for a brief outline of each type of validity identified

Content

- Concurrent – where performance on one measure correlates highly with performance on another measure of the same variable.
- Ecological – where a measure of a behaviour accurately reflects the way in which the behaviour would occur in normal circumstances.
- Temporal – where findings from research that took place at a certain point in time accurately reflect the way that behaviour would occur at a different point in time.

Credit also other types of validity eg criterion, content, construct, population, predictive.

Student response

One other type of validity is predictive. This means that from one measure future behaviour can be predicted. For example, my A levels would have predictive validity if I did well on these and then this could predict future university progress/success. Another type is construct validity and this means is something measuring that construct.

Examiner commentary

Mark awarded = 3 marks

Predictive validity is named and outlined sufficiently with the use of an appropriate example. This would gain both marks. Construct validity is identified but would not gain the outline marks because it is not sufficiently clear.

Question

- 26 Design an experiment to investigate the effect of indoor plants on mood in office workers. For your measure of mood you should devise a measure that would give data suitable for testing at the ordinal level of measurement.

In your answer you should provide details of:

- design – include reference to the experimental design, variables and controls.
- materials/apparatus – describe any special materials required.
- data analysis that could be used – include reference to descriptive and inferential analysis.

Justify your choices.

[12 marks]

Mark scheme

Marks for this question: AO2 = 6 and AO3 = 6

Level	Marks	Description
4	10-12	All three elements are present. Suggestions are generally well detailed, practical and justified showing sound understanding of experimental design and data analysis. There is sufficient information for the study to be implemented. The answer is clear and coherent. Specialist terminology is used effectively. Minor detail and/or justification is sometimes lacking.
3	7-9	All three elements are present. Suggestions are mostly sensible and practical showing some understanding of experimental design and data analysis. There is some appropriate justification. Implementation of some aspects is possible but detail is lacking. The answer is mostly clear and organised. Specialist terminology is mostly used effectively.
2	4-6	At least two elements are present. Some suggestions are appropriate but others are impractical or inadequately explained. Justification is often incomplete or inappropriate. Implementation would be difficult. The answer lacks clarity, accuracy and organisation in places.
1	1-3	At least one element is present but knowledge is very limited. Justification is either absent or inappropriate. Implementation would not be possible. The answer as a whole lack clarity, has many inaccuracies and is poorly organised.
	0	No relevant content.

Three elements to be credited:

Design

- The experimental design to be used (repeated/independent/matched).
- IV and DV – note the DV must be suitable for ordinal level analysis.
- Any relevant aspect of control eg duration of study, control of relevant environmental variables eg office heating, noise pollution – note this need not be exhaustive.

Materials/apparatus

- The self-devised instrument for measuring mood should be one that yields ordinal level data.
 - A rating scale is the most suitable measure eg ratings from 1–10 where 1 = very unhappy and 10 = very happy. Statement(s) from the rating scale should be outlined.
 - Alternatively students could describe a questionnaire and give examples of suitable items.
- (Note – although essential to the study plants need not be described)

Data analysis

- Descriptive statistics should include a measure of central tendency and dispersion (given the requirement for an ordinal level measure the most appropriate here would be the median and range but can award some credit for other measure of central tendency and dispersion).
- Suitable inferential analysis would be a test for differences between two conditions suitable for data at the ordinal level (Mann Whitney or Wilcoxon). Whichever test is chosen it should be consistent with the proposed experimental design.

(Note – descriptive statistics might also include appropriate graph/bar chart but this is not essential)

Student response

The study uses a sample of office workers from a large law company. Ten participants who all worked in the same office volunteered to take part. It took place over a two-week period. It is a repeated measures design experiment so that individual differences can be controlled and any differences measured are due to the IV and not the participant variables. The 10 participants (Ps) will complete a mood scale at the beginning and end of the study. The scale is as follows:

Please circle a number on the scale below to indicate your mood this morning:

1	2	3	4	5
Very				Very
negative				positive
mood				mood

The hypothesis is: There will be a difference in participants' mood score on a scale from 1 (very negative) to 5 (very positive) before office plants are introduced and after office plants are placed in the office.

The independent variable is whether or not the office contained plants and the dependent variable is the mood score on the 5-point scale.

Extraneous variables were controlled where possible. The participants were asked to complete the scale without speaking to each other, the scale was given on both occasions on the same day/time (Monday at 11 a.m.). This was because the office workers might be more tired/bored on different days/times. To control for demand characteristics a double-blind procedure was used where the person giving out the scales and the office workers were unaware of the aim of the study. Standardised instructions were given to control for researcher bias and demand characteristics. The cleaner watered the plants each evening to ensure they were in good condition. The office workers were fully debriefed at the end of the study.

At the beginning of the study there were no plants in the open plan office and the Ps completed the mood scale. That evening a number of plants were placed in the office – 6 flowering geraniums, 6

mini roses and 2 large fig plants which stood on the floor in pots by the door. These remained in the office for 2 weeks.

At the end of 2 weeks the same mood scale was given to the office workers and their scores for the pre-plant and post-plant office were analysed. The data produced would be 10 sets of scores from before the plants were introduced and 10 sets of post-plant results. Because this was a repeated measures design a line graph could be drawn with the mood score on the y-axis and the participants on the x-axis with 2 lines showing the pre-plant and post-plant scores. A table of descriptive statistics could be drawn up with the median (as this scale is not equal interval and so this would be the most appropriate average) and the range. This would give the average score before the plants were introduced and after the introduction of the plants to see if there had been an improvement in mood score. It would also show how spread out the mood scores are between participants.

As the data was not interval an ordinal statistics test would be carried out and for a repeated design this would be the Wilcoxon test. The 5% probability level would be set as this is conventional, and the hypothesis is non directional so a two tailed table would be used.

Examiner commentary

This is a level 4 response

All three elements are present. Suggestions are generally well detailed, practical and justified showing sound understanding of experimental design and data analysis. There is sufficient information for the study to be implemented. The answer is clear and coherent. Specialist terminology is used effectively.

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