A-level
PSYCHOLOGY
7182/2

PAPER 2

Mark scheme

Specimen Material Third Set

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 Assessment Writer.

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 aqa.org.uk

Level of response marking instructions

Level of response mark schemes are broken down into two, three or four levels, each of which has a descriptor. The descriptor for the level shows the average performance for the level. There are two, three or four 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 does not contain anything of relevance to the question must be awarded no marks.

Examiners are required to assign each of the students' responses to the most appropriate level according to **its overall quality**, then allocate a single mark within the level. When deciding upon a mark in a level examiners should bear in mind the relative weightings of the assessment objectives (included for each question and summarised on page 20) and be careful not to over/under credit a particular skill. For example, in question 06 more weight should be given to AO2 than to AO1. This will be exemplified and reinforced as part of examiner training and standardisation.

Section A

Approaches in Psychology

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01   Which **one** of the columns in Figure 1, **A**, **B**, **C** or **D** shows the correct arrangement of levels in Maslow's hierarchy of needs? Shade **one** box only.

[1 mark]

Marks for this question: AO1 = 1

B

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02   Which of the following sentences best describes Wundt's method of introspection? Shade **one** box only.

[1 mark]

Marks for this question: AO1 = 1

B

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03   Two defence mechanisms are denial and displacement.

Outline what is meant by denial and displacement and suggest how each could be involved in Tim coping with his situation.

[4 marks]

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

1 mark each for outlining denial and displacement

Plus

1 mark each for application in the form of a brief relevant suggestion

Denial – refusing to acknowledge reality

Displacement – taking out your emotions on a substitute object

Possible applications:
- Tim refuses to believe his business is gone and still spends all day in his office (denial)
- Tim takes out his anger at the bank by arguing with his family (displacement)

Credit other relevant applications.

04	Briefly evaluate defence mechanisms as a way of explaining human behaviour and experience.
	[4 marks]

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.

05	Outline what is meant by cognitive neuroscience and describe **one** practical application of cognitive neuroscience.
	[6 marks]

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.

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

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.

Section B

Biopsychology

07	Identify the **two** components of the peripheral nervous system, and explain **two** differences in their organisation and/or functions. **[4 marks]**

Marks for this question: AO1 = 2 and AO3 = 2

One mark each for components of the peripheral nervous system - the somatic nervous system (SNS) and the autonomic nervous system (ANS).

Plus

One mark each for relevant difference explained.

Possible differences
- the SNS has sensory <u>and</u> motor pathways, while the ANS is purely motor;
- the ANS controls internal organs and glands of the body while the SNS controls skeletal muscle, movement etc;
- ANS control centres are in the brain stem whilst SNS carries commands from the motor cortex.

Credit other relevant differences.

There must be explicit focus on 'differences' between SNS and ANS for marks to be awarded, rather than independent references to each.

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08	Using your knowledge of plasticity and functional recovery of the brain after trauma, explain Josie's recovery.
	[4 marks]

Marks for this question: AO2 = 4 marks

Level	Marks	Description
2	3–4	Knowledge of plasticity and functional recovery of the brain after trauma is clear and mostly accurate. The material is applied appropriately. The answer is generally coherent with effective use of terminology.
1	1–2	Some knowledge of plasticity and functional recovery of the brain after trauma is evident. Application is not always effective. The answer lacks accuracy and detail. Use of terminology is either absent or inappropriate.
	0	No relevant content.

Possible content

- When the brain is still maturing recovery from trauma is more likely. Josie is young.
- Transfer of functions to undamaged areas ('neural reorganisation') which can explain her recovery.
- Growth of new neurons and/or connections to compensate for damaged areas ('neural regeneration') which can explain her recovery.
- Plasticity allows the brain to cope better with 'indirect' effects of brain damage eg swelling, haemorrhage following road accident.

Top band answers may refer to one of the above points in detail or to more in less detail.
Reference to relevant studies on plasticity, would be an effective way to illustrate key points, but is not necessary for full marks.

09	Which of the following, A, B, C, or D, is a feature of functional magnetic resonance imaging? Shade **one** box only.
	[1 mark]

Marks for this question: AO1 = 1 mark

Correct answer: C

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

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.

11	Discuss what research has shown about localisation of function in the brain.
	[8 marks]

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.

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]

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.

Section C

Research methods

13	Should the hypothesis for this research be directional or non-directional? Explain your answer.
	[2 marks]

Marks for this question: AO2 = 2

1 mark – the hypothesis should be directional

Plus

1 mark – because there is past research indicating the likely direction of the effect (or similar)

14	Explain what is meant by operationalisation and suggest **two** ways in which 'riding a bike with care' could have been operationalised.
	[4 marks]

Marks for this question: AO1 = 2 and AO3 = 2

2 marks for a clear and coherent explanation of operationalisation
1 mark for a brief or muddled explanation of operationalisation

Content: operationalisation involves clearly specifying/defining observable behaviours that represent the more general construct under investigation/to enable the behaviour under investigation to be measured

Plus

1 mark each for two observable behaviours that could represent 'riding a bike with care'. Examples: use of cycle lanes/tracks, passing pedestrians at a distance of at least 1 metre, using bicycle bell

Credit any relevant observable behaviour.

15	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]

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.

16	Identify and briefly outline **two** other types of validity in psychological research.
	[4 marks]

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.

| 17 | Identify the behaviour sampling method used by the students. Shade **one** box only. |
| | **[1 mark]** |

Marks for this question: AO2 = 1

1 mark – C Event sampling

| 18 | Explain how inter-observer reliability could be ensured by working as a pair. |
| | **[3 marks]** |

Marks for this question: AO2 = 3

1 mark for each of the following:
* The student pair should discuss and agree beforehand their interpretation of the behavioural categories
* Each student should then observe the same people/space/target at the same time but record/tally independently
* Their respective recordings/tallies should be correlated using an appropriate statistical test ascertain the level of agreement

| 19 | Calculate the ratio of considerate behaviours observed in Greensville to considerate behaviours observed in Brownton. Show your workings and present your answer in the simplest form. |
| | **[3 marks]** |

Marks for this question: AO2 = 3

1 mark for the correct ratio: 3:2

Plus

2 marks for full workings: 23 + 12 + 19 = 54 and 10 + 17 + 9 = 36
54:36 both divisible by 9 (or 18)
54 ÷ 9 = 6 and 36 ÷ 9 = 4
6:4 can be simplified to 3:2
1 mark for partial workings   eg first 2 of the above stages

20	The students carried out a Chi-square test on their data.
	Explain why the Chi-square test was an appropriate test to use in this case.
	[3 marks]

Marks for this question: AO2 = 3

1 mark for each of the following:
- Data is categorical/nominal/frequency
- The students are looking for a difference or an association between two variables
- Design is independent/unrelated or categories are exclusive (observations cannot appear in more than one cell)

21	Calculate the degrees of freedom for the data in **Table 1**. Show your workings.
	[2 marks]

Marks for this question: AO2 = 2

1 mark for the correct answer: df = 2

Plus

1 mark for correctly substituting values into the formula as follows:
$(2 - 1) \times (3 - 1) = 1 \times 2 = 2$

22	Referring to **Table 2** below, state whether or not the result of the Chi-square test is significant at the 0.05 level of significance. Justify your answer.
	[3 marks]

Marks for this question: AO2 = 3

1 mark for each of the following:

- Yes, the result is significant
- Because the calculated value of Chi-square is more than the critical table value at 0.05, either 4.60 or 5.99, depending on whether student uses one or two-tailed values
- One-tailed is consistent with the hypothesis and Q13, but there is an argument that the Chi-square test should always be two-tailed so either can be credited
- Where df equals 2

23   In the discussion section of their report of the investigation the students wanted to further discuss their results in relation to levels of significance.

Write a short paragraph the students could use to do this.

[4 marks]

Marks for this question: AO2 = 4

Level	Marks	Description
2	3–4	The paragraph is clear and coherent, showing sound understanding of the concept of levels of significance and effective application to the context. There is effective use of terminology.
1	1–2	The paragraph shows some understanding of the concept of levels of significance and/or some relevant application to the context. The answer lacks clarity and coherence. Terminology is either absent or inappropriately used.
	0	No relevant content.

Possible content:
- Explanation of levels of significance as an indication of the measure of the influence/effect of chance/random factors on the findings.
- With the present results there is a 95% confidence in accepting the research hypothesis/confidence that any difference/effect is due to the variables under investigation, in this case the location of the public spaces.
- There is a 5% possibility that the same frequencies would occur if there was no real difference between the two towns.
- The calculated value in this case well exceeds the critical value at 0.05 but does not meet the more stringent level of significance of 0.01.
- Possibility of type one error.

Credit other relevant material.

24   Explain how the students could develop their interview findings by carrying out a content analysis and why content analysis would be appropriate in this case.

[3 marks]

Marks for this question: AO3 = 3

1 mark for explaining that content analysis is suitable because the students are analysing recordings which are a form of media.

Plus

2 marks for a clear, coherent account of how the content could be analysed
1 mark for a brief or muddled account of how the content could be analysed

Content:
Students could identify specific ideas/concepts that occur in the recordings
They could then set up a system of categories and tally the ideas/concepts

25	Suggest **one** inconsiderate behaviour that the students might focus on in their content analysis.
	[1 mark]

Marks for this question: AO3 = 1

1 mark for any relevant inconsiderate behaviour eg leaving rubbish, leaving dirty mugs/plates, playing music loudly, throwing books, shouting

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]

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)

Assessment Objective Grid

Approaches in Psychology	AO1	AO2	AO3	Total
01	1			**1**
02	1 RM			**1**
03	2	2		**4**
04			4	**4**
05	4	2 RM		**6**
06	3	5		**8**
Total	**11**	**9**	**4**	**24**

Biopsychology				
07	2		2	**4**
08		4		**4**
09	1			**1**
10	4			**4**
11	3		5	**8**
12		3		**3**
Total	**10**	**7**	**7**	**24**

Research methods				
13		2 RM		**2**
14	2 RM		2 RM	**4**
15		3 RM		**3**
16	4 RM			**4**
17		1 RM		**1**
18		3 RM/Maths		**3**
19		3 RM/Maths		**3**
20		3 RM/Maths		**3**
21		2 RM/Maths		**2**
22		3 RM/Maths		**3**
23		4 RM/Maths		**4**
24			3 RM	**3**
25			1 RM	**1**
26		6 RM/Maths	6 RM	**12**
Total	**6**	**30**	**12**	**48**

Paper Total	**27**	**46**	**23**	**96**

Research methods = 51 marks
Maths = 24 marks