AQA

A-level
PSYCHOLOGY
7182/2

Paper 2

Mark scheme

Specimen Material

Final Version

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 19) and be careful not to over/under credit a particular skill. For example, in questions 04 and 18 more weight should be given to AO3 than to AO1. This will be exemplified and reinforced as part of examiner training and standardisation.

Section A

Approaches in Psychology

01.1 Which **one** of the following statements is **false**? Shade **one** box only. [1 mark]

Marks for this question: AO1 = 1

C

01.2 Which **one** of the following statements is **false**? Shade **one** box only. [1 mark]

Marks for this question: AO1 = 1

C

02 Explain what is meant by 'inference' in relation to this study. [2 marks]

Marks for this question: AO2 = 2

1 mark for an explanation of inference: going beyond the immediate evidence to make assumptions about mental processes that cannot be directly observed.

Plus

1 mark for a sound application to the study with clear description about what is being inferred (problem difficulty/more difficult processing) on the basis of what is being measured (time taken to solve the problem in the different conditions). Award **1 mark** only for answers where knowledge of inference and application are only partially clear.

03	Outline what is meant by 'congruence'. Explain **one** way in which Dominic might achieve 'congruence'.
	[4 marks]

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

Level	Marks	Description
2	3–4	Outline of congruence is clear and coherent with appropriate use of terminology. Application to Dominic is appropriate with description of need to reduce the gap and how to achieve this.
1	1–2	Outline is limited, ie shows some knowledge that congruence involves different aspects of the self. Application is vague. The answer as a whole is not very clearly expressed.
	0	No relevant content.

Content/Outline:
- congruence is the fit/match/comparability/consistency between the perceived self (how you see yourself) and the ideal self (the self you would like to be).

Application:
- Dominic needs to close the gap/discrepancy between his perceived and his ideal self
- gap can be reduced/closed if he develops a more healthy view of himself, or, has a more achievable and realistic ideal self – unconditional positive regard from the therapist is an example of a specific strategy here.

04	Discuss the contribution of behaviourist psychologists such as Pavlov and Skinner to our understanding of human behaviour.
	[16 marks]

Marks for this question: AO1 = 6 and AO3 = 10

Level	Marks	Description
4	13–16	Knowledge of contribution/s is accurate and generally well detailed. Discussion is thorough and effective. Answer is clear, coherent and focused on contributions to understanding human behaviour. Specialist terminology is used effectively. Minor detail and/or expansion of argument sometimes lacking.
3	9–12	Knowledge of contribution/s is evident and there is some reference to the understanding of human behaviour. There are occasional inaccuracies. Discussion is apparent and mostly effective. The answer is mostly clear and organised. Specialist terminology mostly used effectively. Lacks focus in places.
2	5–8	Knowledge of contribution/s is present. Focus is mainly on description. Any discussion is only partly effective. The answer lacks clarity, accuracy and organisation in places. Specialist terminology used inappropriately on occasions.
1	1–4	Knowledge of contribution/s 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.

Content, possible contributions:
- gave appreciation of how behaviour is learnt and environmentally determined
- large scale data gathering and generalisation allowed for development of laws and principles
- gave us theories of learning and laws of learning – classical and operant conditioning theories
- emphasised importance of consequences, ie behaviour that is rewarded likely to be repeated
- emphasised role of reinforcement and punishment – strengthens or weakens learning
- insistence on objectivity and study of overt behaviour – raising psychology's scientific status.

Credit other relevant contributions.

Discussion of possible contributions:
- strict scientific methods, objectivity, controlled research, verifiable findings led to raised status of psychology but meant that many aspects of human behaviour could not be studied
- implications, eg development of laws and principles enabled prediction and control of behaviour and how these apply to human behaviour
- usefulness for aspects of human behaviour, eg therapy, classroom management etc
- reductionist approach focusing on lower level of explanation, eg S-R links/associations therefore lacks meaning when it comes to complex human behaviours
- focus just on behaviour neglected the whole person, eg in treatment using conditioning only
- strongly deterministic – human behaviour is environmentally determined – what of free will?
- research mainly with animals therefore generalisation to human behaviour could be limited
- discussion about the balance between reliability and validity in behaviourist research
- ethical issues, eg as applied to control of human behaviour
- comparison with what other approaches offer in explanations of human behaviour.

Credit other relevant strengths and limitations.

Section B

Biopsychology

05	Using your knowledge of localisation of function in the brain, identify the area of cortical specialisation. Shade **one** box only for each area.
	[5 marks]

Marks for these questions: AO1 = 5

05.1   A
05.2   C
05.3   D
05.4   E
05.5   B

06	The electroencephalogram (EEG) and event-related potentials (ERPs) both involve recording the electrical activity of the brain.
	Outline **one** difference between the EEG and ERPs.
	[2 marks]

Marks for this question: AO1 = 2

2 marks for clear outline of the key difference: EEG is a recording of general brain activity usually linked to states such as sleep and arousal, whilst ERPs are elicited by specific stimuli presented to the participant.

1 mark for a muddled/vague answer that shows some understanding of general state vs specific response.

Note - question is about differences, so no credit for simply describing the technique.

07	Using your knowledge of endogenous pacemakers and exogenous zeitgebers, explain Sam's experiences.
	[4 marks]

Marks for this question: AO2 = 4

Level	Marks	Description
2	3–4	Knowledge of the role of endogenous pacemakers and exogenous zeitgebers and how they interact to affect the normal sleep-wake cycle is clear and mostly accurate. The material is used appropriately to explain Sam's experiences/symptoms. The answer is generally coherent with effective use of specialist terminology.
1	1–2	Some knowledge of the role of endogenous pacemakers and exogenous zeitgebers in the sleep-wake cycle is evident. The material is not always linked explicitly or effectively to Sam's experiences/symptoms. The answer lacks accuracy and detail. Use of specialist terminology is either absent or inappropriate.
	0	No relevant content.

Content:
- endogenous pacemakers – internal biological rhythms
- exogenous zeitgebers – external factors, eg light
- moving to night shift means pacemakers try to impose inbuilt rhythm of sleep, but are now out of synchrony with the zeitgeber of light
- disruption of biological rhythms has been shown to lead to disrupted sleep patterns, increased anxiety and decreased alertness and vigilance.

08	The human female menstrual cycle is an example of **one** type of biological rhythm; it is called a:
	[1 mark]

Marks for this question: AO1 = 1

B

09	Outline the structures and processes involved in synaptic transmission.
	[6 marks]

Marks for this question: AO1 = 6

Level	Marks	Description
3	5–6	Knowledge of both structures and processes involved in synaptic transmission, including reference to **both** presynaptic and postsynaptic processes, is generally accurate and mostly well detailed. The answer is clear and coherent. Specialist terminology is used effectively.
2	3–4	Knowledge of both the structures and processes involved in synaptic transmission is evident. Focus is on pre **or** postsynaptic processes. There are some inaccuracies. There is some appropriate use of specialist terminology.
1	1–2	Knowledge of structures and/or processes involved in synaptic transmission is limited and lacks detail. There are inaccuracies. Specialist terminology is either absent or inappropriately used.
	0	No relevant content.

Content: the synaptic cleft; pre and postsynaptic membranes; postsynaptic receptor sites, neurotransmitters in vesicles in the presynaptic terminal, release of neurotransmitters into the synaptic cleft when stimulated by nerve impulses (action potentials) arriving at the presynaptic terminal, combination of neurotransmitters with postsynaptic receptors; postsynaptic effects either excitatory (depolarisation) or inhibitory (hyperpolarisation).

Diagrams can describe the structure effectively but text is necessary to explain the processes.

10	Split brain patients show unusual behaviour when tested in experiments. Briefly explain how unusual behaviour in split brain patients could be tested in an experiment. **[2 marks]**

Marks for this question: AO2 = 2

2 marks for a clear, brief explanation including detail of an appropriate experimental procedure and what patients would be required to do.

1 mark for a vague explanation which has some detail about an appropriate experimental procedure and what patients would be required to do.

Possible suggestions:
- plausible experimental situation/set-up – eg split visual field, dichotic listening
- plausible stimulus – visual, faces, words, auditory, digits, music etc
- plausible task for patient – verbal or visuospatial response, eg drawing, matching etc.

11	Briefly evaluate research using split brain patients to investigate hemispheric lateralisation of function. **[4 marks]**

Marks for this question: AO3 = 4

Level	Marks	Description
2	3–4	Evaluation is relevant and well explained. Answer focuses on the usefulness of split brain research for the study of hemispheric lateralisation. The answer is generally coherent with effective use of terminology.
1	1–2	Evaluation is relevant although there is limited explanation and/or limited focus on the purpose of the research. 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:
- the disconnection between the hemispheres was greater in some patients than others
- some patients had experienced drug therapy for much longer than others
- the comparison groups were not considered to be valid as they were often people with no history of epileptic seizures
- the data were artificially produced as in real life a severed corpus callosum can be compensated for by the unrestricted use of two eyes
- the research has added to the unity of consciousness debate
- research relates to small sample sizes.

Credit other relevant evaluation points.

Section C

Research methods

12	Identify the dependent variable in this study.
	[2 marks]

Marks for this question: AO2 = 2

2 marks for identification of dependent variable operationalised: number of verbal errors.

1 mark for dependent variable not operationalised: verbal errors or fluency or mistakes.

13	Write a suitable hypothesis for this study.
	[3 marks]

Marks for this question: AO2 = 3

3 marks for an appropriate non-directional (or directional) operationalised hypothesis:

'There is a difference in number of verbal errors made by participants who perceive/think/believe there are 5 listeners (there is a small audience) and by participants who perceive/think/believe there are 100 listeners (there is a large audience)'.

2 marks for a statement with both conditions of the IV and a DV that lacks clarity or has only one variable operationalised.

1 mark for a muddled statement with both conditions of the IV and a DV where neither variable is operationalised.

0 marks for expressions of aim/questions/correlational hypotheses or statements with only one condition.

Full credit can be awarded for a hypothesis expressed in a null form.

14	Identify **one** extraneous variable that the psychologist should have controlled in the study **and** explain why it should have been controlled.
	[3 marks]

Marks for this question: AO2 = 3

1 mark for identification of **one** appropriate extraneous variable.

Plus

2 marks for explanation of why the variable should have been controlled – for full marks this should include clear explanation of how it would have affected the DV. Award one mark only for muddled or incomplete explanations, eg unelaborated reference to 'avoiding confounding'.

Appropriate variables: can be controlled and need to stay constant to avoid affecting the dependent variable, eg same article/conditions/instructions for each participant.

Do not credit gender (this is controlled) or time to complete task (cannot be controlled).

15	Explain **one** advantage of using a stratified sample of participants in this study.
	[2 marks]

Marks for this question: AO2 = 2

2 marks for clear and coherent explanation of one advantage of using a stratified sample in this study.

1 mark for a muddled answer with a relevant advantage and some explanation in relation to the study.

Possible advantage: ensures that this sample is truly representative because different types of people (males/females) working in this company are represented in the sample in the correct proportions.

Accept other relevant advantages.

16	Explain how the psychologist would have obtained the male participants for her stratified sample. Show your calculations.
	[3 marks]

Marks for this question: AO2 = 3

1 mark for each point as follows:

Manual method:
- put all 60 male names in a hat (or similar)
- determine the proportion of males needed to mirror the number of males in the target population as follows: 60%
- calculate 60% of 20 = 12 and draw out 12 names.

Random number table or computer method:
- assign each of the 60 men a number between 1 and 60
- determine the proportion of males needed to mirror the number of males in the target population as follows: 60%
- calculate 60% of 20 = 12 and moving horizontally or vertically through random number tables find 12 numbers between 1 and 60 for the sample **OR** generate 12 numbers between 1 and 60 using random number generation function on computer.

17	The psychologist wanted to randomly allocate the 20 people in her stratified sample to the two conditions. She needed an equal number of males in each condition and an equal number of females in each condition. Explain how she would have done this.
	[4 marks]

Marks for this question: AO2 = 4

Marks for a clear description of a practical way of randomly allocating the 12 men and 8 women to the two conditions as follows:

- give each man a number 1–12 (1 mark)
- put 12 numbers in a hat (1 mark)
- assign first six numbers drawn to Condition A with the remainder for Condition B (1 mark)
- repeat process for women – eight numbers in the hat and draw four for Condition A and remaining four go to Condition B (1 mark).

Accept other valid descriptions that would be practical and produce the same outcome.

18	What conclusions might the psychologist draw from the data in **Table 1**? Refer to the means **and** the standard deviations in your answer.
	[6 marks]

Marks for this question: AO2 = 2 and AO3 = 4

Level	Marks	Description
3	5–6	Conclusions in respect of both means and standard deviations are presented with clarity. Understanding of the relevance of each statistic is demonstrated. Justifications for each make good use of the values given.
2	3–4	Conclusions and justification in respect of both means and standard deviations are relevant, but there is some lack of clarity in both. Or, one is done well and justified appropriately (most usually this will be the mean).
1	1–2	One conclusion is drawn or two are partially correct. Any justification is limited. The answer lacks clarity.
	0	No relevant content.

Means
- Conclusion: when people believe they are presenting to a large audience they are less fluent in their spoken communication than when they believe the audience is small (or vice versa).

- Justification/Application: this is supported by the difference in the mean fluency scores which show more verbal mistakes (on average 6 more mistakes) when the audience is believed to be large (or vice versa).

Standard deviations
- Conclusion: performances of participants in Condition A where audience is believed to be small are less varied/dispersed/spread out than in Condition B where audience is believed to be large (or vice versa).

- Justification/Application: lower SD in Condition A suggests that individual performances in Condition A were more similar to each other and/or all quite close to the mean of 11.1.

19	Explain how using the standard deviation rather than the range, in this situation, would improve the study.
	[3 marks]

Marks for this question: AO3 = 3

1 mark – this would be an improvement because the SD is a measure of dispersion that was less easily distorted by a single extreme score.

Plus

1 mark – one that takes account of the distance of all the verbal error scores from the mean.

Plus

1 mark – not just the distance between the highest verbal error score and the lowest verbal error score.

20	Name an appropriate statistical test that could be used to analyse the number of verbal errors in **Table 1**. Explain why the test you have chosen would be a suitable test in this case.
	[4 marks]

Marks for this question: AO2 = 4

1 mark for naming the t-test for independent/unrelated groups or a Mann-Whitney test.

Plus

Up to 3 marks for explanation for unrelated t-test. Credit relevant points as follows:
- can assume interval data because verbal errors can be assumed to be of equal size (ie one verbal error is equivalent to any other verbal error)
- the experimental design is independent groups
- the psychologist is looking for a difference between the two conditions.

OR

Up to 3 marks for explanation for Mann-Whitney test. Credit relevant points as follows:
- data should be treated as ordinal. Cannot assume interval data because verbal errors cannot be assumed to be of equal size (ie one verbal error is not equivalent to any other verbal error)
- the experimental design is independent groups
- the psychologist is looking for a difference between the two conditions
- SDs are quite different.

21	The psychologist found the results were significant at p<0.05. What is meant by 'the results were significant at p<0.05'?
	[2 marks]

Marks for this question: AO1 = 2

2 marks for a clear and appropriate definition as follows:
This means that there is a less than 5% likelihood that this difference would occur if there is no real difference between the conditions **OR** the researchers would have a 95% confidence level.

1 mark for a less clear answer which shows some understanding, eg this means the researcher can conclude that the difference was not due to chance.

Accept any other valid answer.

22	Briefly explain **one** method the psychologist could use to check the validity of the data she collected in this study.
	[2 marks]

Marks for this question: AO2 = 2

2 marks for a clear and detailed explanation applied to this study.

1 mark for a partial or muddled explanation or one that is only loosely applied to the study.

Credit answers based on any type of validity. Most answers will refer to either face or concurrent as follows:
- asking other people if verbal errors are a good measure of verbal fluency (face validity)
- giving participants an alternative/established verbal fluency test and checking to see that the two sets of data are positively correlated (concurrent validity).

23	Briefly explain **one** reason why it is important for research to undergo a peer review process.
	[2 marks]

Marks for this question: AO3 = 2

2 marks for a clear and coherent explanation of one reason.

1 mark for a partial or muddled explanation of one reason.

Possible content:
- prevents dissemination of irrelevant findings/unwarranted claims/unacceptable interpretations/personal views and deliberate fraud – improves quality of research
- ensures published research is taken seriously because it has been independently scrutinised
- increases probability of weaknesses/errors being identified – authors and researchers are less objective about their own work.

Accept other valid answers.

24	Design an observation study to investigate sex differences in non-verbal behaviour of males and females when they are giving a presentation to an audience.

In your answer you should provide details of:

- the task for the participants
- the behavioural categories to be used and how the data will be recorded
- how reliability of the data collection might be established
- ethical issues to be considered.

[12 marks]

Marks for this question: AO2 = 12

Level	Marks	Description
4	10–12	Suggestions are generally well detailed and practical, showing sound understanding of observational techniques. **All four** elements are present. There is sufficient information for most aspects of the study to be implemented with success. The answer is clear and coherent. Specialist terminology is used effectively. Minor detail and/or explanation sometimes lacking.
3	7–9	Suggestions are mostly sensible and practical, showing some understanding of observational techniques. **At least three** elements are present. Implementation of some aspects is possible. The answer is mostly clear and well organised. Specialist terminology is mostly used effectively.
2	4–6	Some suggestions are appropriate but others are impractical or inadequately explained. **At least two** elements are addressed. Implementation would be difficult based on the information given. The answer lacks clarity, accuracy and organisation on occasions.
1	1–3	**At least one** element is addressed but knowledge of observational techniques is limited. Implementation would be very difficult. The whole answer lacks clarity, has many inaccuracies and is poorly organised.
	0	No relevant content.

Four elements of design to be credited:
- **The task for the participants** – detail of what the men and women in the study will have to do. This must go beyond 'give a presentation to an audience'.

- **The behavioural categories to be used and how the data will be recorded –** detail of specific and observable behaviours to be recorded. This must go beyond the idea of global constructs such as 'body language' or 'gesture'. Also detail of recording method to be used, eg record sheet.

- **How reliability of the data collection might be established**, eg using two observers/raters and comparing separate recordings; statistical comparison of data from both observers/raters.

- **Ethical issues to be considered**, eg specific or more general ethical considerations as applied to this study – protection of welfare, confidentiality and deception, respect or integrity.

Examples of possible tasks:
- presentation of findings from a school project
- presentation on 'My Hobby'
- presentation on 'My Holiday'.

Examples of suitable non-verbal behaviours include:
- arm movements
- smiling
- speech hesitations
- pointing etc.

Assessment Objective Grid

Approaches in Psychology	AO1	AO2	AO3	Total
01.1	1			**1**
01.2	1			**1**
02		2		**2**
03	2	2		**4**
04	6		10	**16**
Total	**10**	**4**	**10**	**24**

Biopsychology				
05	5			**5**
06	2			**2**
07		4		**4**
08	1			**1**
09	6			**6**
10		2 RM		**2**
11			4 RM	**4**
Total	**14**	**6**	**4**	**24**

Research methods				
12		2 RM		**2**
13		3 RM		**3**
14		3 RM		**3**
15		2 RM		**2**
16		3 RM/Maths		**3**
17		4 RM/Maths		**4**
18		2 RM/Maths	4 RM	**6**
19			3 RM/Maths	**3**
20		4 RM/Maths		**4**
21	2 RM/Maths			**2**
22		2 RM		**2**
23			2 RM	**2**
24		12 RM		**12**
Total	**2**	**37**	**9**	**48**

Paper Total	26	47	23	96

Research methods = 54 marks
Maths = 18 marks

14 October 2014