GCE A LEVEL MARKING SCHEME

SUMMER 2025

A LEVEL
PSYCHOLOGY – UNIT 4
1290U40-1

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About this marking scheme

The purpose of this marking scheme is to provide teachers, learners, and other interested parties, with an understanding of the assessment criteria used to assess this specific assessment.

This marking scheme reflects the criteria by which this assessment was marked in a live series and was finalised following detailed discussion at an examiners' conference. A team of qualified examiners were trained specifically in the application of this marking scheme. The aim of the conference was to ensure that the marking scheme was interpreted and applied in the same way by all examiners. It may not be possible, or appropriate, to capture every variation that a candidate may present in their responses within this marking scheme. However, during the training conference, examiners were guided in using their professional judgement to credit alternative valid responses as instructed by the document, and through reviewing exemplar responses.

Without the benefit of participation in the examiners' conference, teachers, learners and other users, may have different views on certain matters of detail or interpretation. Therefore, it is strongly recommended that this marking scheme is used alongside other guidance, such as published exemplar materials or Guidance for Teaching. This marking scheme is final and will not be changed, unless in the event that a clear error is identified, as it reflects the criteria used to assess candidate responses during the live series.

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WJEC GCE A LEVEL PSYCHOLOGY – UNIT 4

SUMMER 2025 MARK SCHEME

Question	AO1	AO2	AO3	Total
1(a)(i)	2			2
1(a)(ii)	2			2
1(b)		4		4
1(c)(i)		2		2
1(c) (ii)		2		2
1(d)			4	4
2(a)	2			2
2(b)(i)	1			1
2(b)(ii)		2		2
2(c)(i)	1			1
2(c)(ii)		3		3
2(c)(iii)		2		2
2(d)			3	3
3(a)(i)	1			1
3(a)(ii)		2		2
3(b)		2		2
3(c)		2		2
3(d)			2	2
3(e)			4	4
4(a)	1			1
4(b)			3	3
4(c)(i)		2		2
4(c)(ii)		2		2
4(d)		3		3
4(e)		2		2
4(f)			4	4
Total	**10**	**30**	**20**	**60**

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SECTION A – Personal investigations

You should answer **all** the questions in this section with reference to the personal investigations carried out in your study of psychology.

INVESTIGATION ONE:

A quasi-experiment on age and sleep.

1(a) (i)	**Explain how the independent variable was operationalised in your quasi-experiment.**	**2**

Exemplar answers:

- The IV was age and this was operationalised by having one group of participants aged 16-18 years and one group of participants aged 40-42 years. (2 marks)
- The IV was age and this was operationalised by having a group of 16–18-year-olds. (1 mark)
- Any other appropriate content.

Marks	AO1
2	• Reasonable explanation of how the independent variable was operationalised within the research.
1	• Basic explanation of how the independent variable was operationalised within the research.
0	• Inappropriate answer given. • No response attempted.

1(a) (ii)	**Explain how the dependent variable was operationalised in your quasi-experiment.**	**2**

Exemplar answers:

- The DV was sleep and this was operationalised by using a sleep monitor wrist band to monitor the amount of hours sleep per night and any sleep disturbances. (2 marks)
- The DV was sleep and this was operationalised by using a sleep monitor watch. (1 mark)
- Any other appropriate content.

Marks	AO1
2	• Reasonable explanation of how the dependent variable was operationalised within the research.
1	• Basic explanation of how the dependent variable was operationalised within the research.
0	• Inappropriate answer given. • No response attempted.

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1(b)	**Explain <u>one</u> ethical issue you faced during your quasi-experiment and explain how you dealt with it.**	**4**

Exemplar answers:

- One ethical issue was valid consent as participants in the different age groups will need to be fully informed about the study measuring age and sleep and inform them of the potential stress that may occur if noticing sleep disturbances. This was dealt with by giving the participants a consent form before the study stating that the research could potentially trigger some anxiety if the sleep monitor showed a lot of sleep disturbances and were made aware of the right to withdraw at any time. (4 marks)
- One ethical issue was confidentiality as the 60-62 age group may not want their age to be disclosed and identifiable to them. This was dealt with by using numbers not names. (3 marks)
- One ethical issue was valid consent. This was dealt with by giving the participants a consent form before the study stating that the research could potentially trigger some anxiety if the sleep monitor showed a lot of sleep disturbances and were made aware of the right to withdraw at any time. (2 marks)
- One ethical issue was confidentiality of the data as the participant may not want to be identifiable. (1 mark)

- Any other appropriate ethical issue or way of dealing with issue.

- N.B. Credit not given for just identifying an ethical issue.

Marks	**AO2**

For each identified ethical issue:

- One mark for explaining appropriate ethical issue that is relevant to the personal investigation.
- One mark for clearly linking the appropriate ethical issue to this personal investigation.
- One mark for explaining an appropriate way of managing the risk posed by ethical issue in this personal investigation.
- One mark for clearly linking the appropriate way of managing the risk posed by ethical issue to this personal investigation.

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1(c) (i)	**Explain <u>one</u> issue of validity you considered before conducting your quasi-experiment.**	**2**

Exemplar answers:

- One issue of validity considered was social desirability bias as the friends and family may have reported more hours of sleep per night to be seen in a more favourable light. (2 marks)
- One issue of validity considered was population validity as the sample was an opportunity sample. (1 mark)
- Any other appropriate content.

Marks	AO2
2	• Clear application to the research title. • Reasonable explanation of one issue of validity considered.
1	• Minimal application to the research title. • Basic explanation of one issue of validity considered.
0	• Inappropriate answer given. • No response attempted.

1(c) (ii)	**Explain <u>one</u> way validity could be assessed in your quasi-experiment.**	**2**

Exemplar answers:

- Face validity could be used by asking a non-expert in the field of age and sleep to look at the measurement of sleep (the sleep wrist monitors) and assess whether it was a valid measure of sleep. (2 marks)
- Content validity was used as we asked an expert in the field of sleep to assess our measurement of sleep. (1 mark)
- Any other appropriate content.

Marks	AO2
2	• Clear application to the research title. • Reasonable explanation of how validity could be assessed within the research.
1	• Minimal application to the research title. • Basic explanation of how validity could be assessed within the research.
0	• Inappropriate answer given. • No response attempted.

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1(d)	**Evaluate <u>one</u> strength and <u>one</u> weakness of using a quasi-experiment**	**2+2**

Credit will be given for:

Strengths:

- Allows research where the IV cannot be manipulated for practical or ethical reasons so a range of behaviour can be investigated.
- Allows researchers to investigate 'real' problems such as the effects of a disaster on health, which can help a greater amount of people in more situations.

Weaknesses:

- Cannot determine causal relationships because the IV isn't manipulated directly so we cannot be sure that the IV caused the effect upon the DV.
- There is a threat to the internal validity of the research due to there being less control over extraneous variables.

- Any other appropriate content.

Marks	AO3
2	• Reasonable evaluation of a strength/weaknesses of a quasi-experiment. • Appropriate terminology.
1	• Basic evaluation of a strength/weaknesses of a quasi-experiment. • Limited terminology.
0	• Inappropriate answer given. • No response attempted.

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INVESTIGATION TWO:

A correlational study involving a Stroop test.

2(a)	**State the operationalised alternative hypothesis for your correlational study.**	**2**

Exemplar answers:

- There will be a negative correlation between age in years and amount of words correctly identified on the Stroop test. (2 marks)
- There will be a relationship between age in years and performance on the Stroop test. (1 mark)

- Any other appropriate content.

N.B. experimental hypotheses will not be creditworthy.

Marks	AO1
2	• Alternative hypothesis stated with both conditions clearly operationalised.
1	• Alternative hypothesis stated with only one condition clearly operationalised.
0	• Inappropriate answer given. • No response attempted.

2(b) (i)	**Identify the graphical representation you used to represent the data for your correlational study.**	**1**

Credit will be given for:

- Scatter diagram.

- Any other appropriate content.

Marks	AO1
1	• Appropriate graphical representation identified.
0	• Inappropriate answer given. • No response attempted.

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2(b) (ii)	**Justify your choice of the graphical representation identified in 2 (b) (i).**	**2**

Exemplar answers:

- We chose a scatter diagram as it was a correlational study on age and number of words correctly identified on the Stroop test therefore a scatter diagram was most appropriate to show the relationship between these two co-variables. (2 marks)
- A scatter diagram was most appropriate to show the relationship between age and performance on the Stroop test. (1 mark)
- Any other appropriate content.

Marks	AO2
2	• Reasonable justification of why the graphical representation identified in (a)(i) was chosen and linked to the investigation.
1	• Basic justification of why the graphical representation identified in (a)(i) was chosen and linked to the investigation.
0	• Inappropriate answer given. • No response attempted.

2(c) (i)	**Identify the inferential statistical test you used when analysing the data collected in your correlational study.**	**1**

Credit will be given for:

- Spearman's rank order correlation coefficient.
- Any other appropriate content.

Marks	AO1
1	• Appropriate inferential statistic identified.
0	• Inappropriate answer given. • No response attempted.

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2(c) (ii)	**Fully justify your choice of the inferential statistical test identified in 2(c)(i) for your investigation.**	**3**

Exemplar answers:

- It was a correlation between performance on a Stroop test (number of words correctly identified) and age in years. The level of measurement was ratio as number words correctly identified and age had equal units of measurement and a fixed zero. The data was related as it measured the relationship between two co-variables – age and performance on the Stroop test. (3 marks)
- It was a correlation between performance on a Stroop test (number of words correctly identified) and age in years. The level of measurement was at least ordinal as number words correctly identified and age could be put in order. The data was related. (2 marks)
- It was a correlation between performance on a Stroop test (number of words correctly identified) and age in years. The level of measurement was ratio. The data was related. (1 mark)

- Any other appropriate content.

Marks	AO2
3	**All** of the following conditions included in the justification: • Test of a correlation noted and linked to the research. • Level of measurement of both co-variables noted and linked to the research. • Related data noted and linked to the research.
2	**Two** of the following conditions included in the justification: • Test of a correlation noted and linked to the research. • Level of measurement of both co-variables noted and linked to the research. • Related data noted and linked to the research.
1	**One** of the following conditions included in the justification: • Test of a correlation noted and linked to the research. • Level of measurement of both co-variables noted and linked to the research. • Related data noted and linked to the research.
0	• Inappropriate answer given. • No response attempted.

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2(c) (iii)	**With reference to your observed (calculated) value and critical value explain which hypothesis you accepted.**	**2**

Exemplar answers:

- The observed value (0.41) was greater than the critical value (0.38) therefore the result was significant and we accepted the alternative hypothesis. (2 marks)
- The observed value was less than the critical value so we accepted the null hypothesis. (1 mark)

- Any other appropriate content.

N.B. the observed and critical values should reflect the inferential statistics used e.g. Spearman's Rank Order Correlation Co-efficient should have a value between 0 and 1.

Marks	AO2
2	• Reasonable explanation of which hypothesis was accepted with reference to the observed and critical values. • Appropriate terminology.
1	• Basic explanation of which hypothesis was accepted with reference to the observed and critical values. • Limited terminology.
0	• Inappropriate answer given. • No response attempted.

2(d)	**Discuss how <u>one</u> change to your correlational study could improve the investigation.**	**3**

Credit will be given for:

- Sample.
- Ethics.
- Validity.
- Reliability.
- Descriptive statistics.

- Any other appropriate content.

Marks	AO3
3	• Thorough discussion of how one change to the correlational study could improve the investigation. • Appropriate terminology.
2	• Reasonable discussion of how one change to the correlational study could improve the investigation. • Reasonable terminology.
1	• Superficial discussion of how one change to the correlational study could improve the investigation. • Limited terminology.
0	• Inappropriate answer given. • No response attempted.

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SECTION B – Application of research methods to novel scenarios

Answer **all** questions.

Q3.

Research has shown that colour can affect mood.

To investigate this, an experiment was conducted in a laboratory using two groups of participants. The hypothesis was 'participants exposed to the colour blue will have a higher mood rating on a scale of 1-5 than participants exposed to the colour red'.

There were 10 participants in Group 1 and 10 participants in Group 2. Group 1 were taken to a room painted blue and were shown 10 images with a blue theme, for example, a picture of the sea. Group 2 were taken to a room painted red and were shown 10 images with a red theme, for example, a picture of a fire engine.

After the participants were shown the images, they were asked to rate their mood on a scale of 1-5 (1 = very bad mood and 5 = very good mood). The results are shown in the table below.

Figure 1: Table of results to show the mood rating of participants.

Participant	Group 1 (blue condition)	Participant	Group 2 (red condition)
A	4	K	2
B	5	L	2
C	4	M	3
D	3	N	1
E	3	O	3
F	5	P	4
G	2	Q	2
H	5	R	2
I	4	S	1
J	3	T	3

3(a)	**The following definition can be used to describe the data collected:** **'Data can be placed into ascending or descending order, but the intervals between data are not necessarily equal.'** **Identify this level of measurement.**	**1**

Credit will be given for:

- Ordinal data.
- Any other appropriate content.

Marks	AO1
1	• Appropriate level of measurement identified.
0	• Inappropriate answer given. • No response attempted.

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3(b)	**Evaluate independent groups experimental design.**	3

Credit will be given for:

Strengths:

- There are no order effects in an independent groups design as participants only take part in once condition of the IV. This improves internal validity.
- There is less chance of demand characteristics than there is in a repeated measures design as participants only take part in one condition of the IV. This improves the internal validity.

Weaknesses:

- There may be participant variables between the groups which are responsible for the changes in the DV rather than the IV. This threatens the internal validity.
- An independent design needs twice as many participants as a repeated measures design to produce the same amount of data.

- Any other appropriate content.

Marks	AO3
3	• Thorough evaluation of an independent groups design. • Appropriate terminology.
2	• Reasonable evaluation of an independent groups design. Reasonable terminology.
1	• Superficial evaluation of an independent groups design. • Limited terminology.
0	• Inappropriate answer given. • No response attempted.

3(c) (i)	**Calculate the mean mood rating for the participants in Group 1 (blue condition). Show your workings.** $\frac{\sum x}{n}$	2

Exemplar answers:

- 4+5+4+3+3+5+2+5+4+3 = 38.
  38/10 = 3.8 (2 marks)

- 3.8 (1 mark)
- 4+5+4+3+3+5+2+5+4+3 = 38.
  38/10 = 3.7 (1 mark)

- Any other appropriate content.

Marks	AO2
2	• An accurate mean is given and workings are accurate.
1	• An accurate mean is given but workings are missing/inaccurate. **OR** • An inaccurate mean is given but workings are displayed.
0	• Inappropriate answer given. • No response attempted.

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3(c) (ii)	**Explain why the mean would be an appropriate measure of central tendency of the data in this research.**	**2**

Exemplar answers:

- The mean would be an appropriate measure of central tendency as there are no extreme values/outliers in the data set as the data ranges from 2-5 and therefore the result would not be distorted. (2 marks)
- The mean would be appropriate as it is the most sensitive measure of central tendency as it considers all the values in the data set for the Group 1 blue condition. (2 marks)
- The mean would be appropriate as it gives a single value unlike the mode when there is more than one value in the data set as Group 1 blue condition has three modal values (3, 4, and 5). (2 marks)
- The mean would be an appropriate measure of central tendency as there are no extreme values in Group 1 blue condition. (1 mark)

- Any other appropriate content.

Marks	AO2
2	• Reasonable explanation of why the mean would be an appropriate measure of central tendency of the data in this research. • Appropriate terminology.
1	• Basic explanation of why the mean would be an appropriate measure of central tendency of the data in this research. • Limited terminology.
0	• Inappropriate answer given. • No response attempted.

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3(d)	**The researcher analysed the data using the Mann Whitney U test using a 0.05 probability value. The observed (calculated) value of U was 15. The critical value of U was 27.** **Explain which hypothesis the researcher should accept and which hypothesis the researcher should reject.**	**3**

Exemplar answers:

- As the observed (calculated) value (15) is lower than the critical value (27) the result is significant and the experimental hypothesis should be accepted and the null hypothesis should be rejected. (3 marks)
- As the observed (calculated) value (15) is lower than the critical value (27) the result is significant and the experimental hypothesis should be accepted. (2 marks)
- The null hypothesis should be rejected. (1 mark)
- Any other appropriate content.

Marks	AO2
3	**All** of the following conditions included in the explanation: • Correctly notes the experimental hypothesis should be accepted. • Correctly notes the null hypothesis should be rejected. • Correct application of the observed (calculated) value and critical value rule for Mann Whitney U test.
2	**Two** of the following conditions included in the justification: • Correctly notes the experimental hypothesis should be accepted. • Correctly notes null hypothesis should be rejected. • Correct application of the observed (calculated) value and critical value rule for Mann Whitney U test.
1	**One** of the following conditions included in the justification: • Correctly notes the experimental hypothesis should be accepted. • Correctly notes null hypothesis should be rejected. • Correct application of the observed (calculated) value and critical value rule for Mann Whitney U test.
0	• Inappropriate answer given. • No response attempted.

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3(e)	**Explain how <u>one</u> confounding variable could affect this investigation.**	2

Exemplar answers:

- One of the participants in the red condition may be ill and be in a bad mood as they're not feeling well and this could skew the data as it's not the colour of the room affecting the mood but rather the individual's health and wellbeing. (2 marks)
- Some of the participants could be tired and this could affect their mood. (1 mark)
- Any other appropriate content.
- N.B. confounding variables affect SOME not all participants equally.

Marks	AO2
2	• Reasonable explanation of one confounding variable could affect this investigation. • Appropriate terminology.
1	• Basic explanation of one confounding variable could affect this investigation. • Limited terminology.
0	• Inappropriate answer given. • No response attempted.

(3(f))	**Evaluate one strength and one weakness of conducting research in a laboratory environment.**	[2+2]

Credit will be given for:

Strengths:

- The high level of control of all variables eliminates the effects of extraneous variables that could influence the results. This improves internal validity and allows strong causal relationships.
- Higher level of internal reliability as all instructions and measuring tools can be standardised in a controlled setting.

Weaknesses:

- Research conducted in a controlled laboratory setting can lack ecological validity as they are carried out in an artificial environment, so may not reflect everyday life. This threatens the ecological validity of the researcher as it makes it harder to generalise the results to the outside world.
- Increased chance of demand characteristics as in a controlled setting the participants are more likely to guess the aim of the research than they would in a field setting. This threatens the internal validity of the research.
- Any other appropriate content.

Marks	AO3
2	• Reasonable evaluation of research conducted in a laboratory environment. • Appropriate terminology.
1	• Basic evaluation of research conducted in a laboratory environment. • Limited terminology.
0	• Inappropriate answer given. • No response attempted.

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Q4.
Researchers conducted a questionnaire study to investigate happiness in A Level students. They used a random sample of 50 A Level students from a local Sixth Form College.

An example of one of the questions from the questionnaire study was:
'Describe how studying A Levels affects your happiness levels'.

4(a) (i)	**State whether the example question would generate qualitative or quantitative data.**	1

Credit will be given for:
- Qualitative data.
- Any other appropriate content.

Marks	AO1
1	• Qualitative data stated.
0	• Inappropriate answer given. • No response attempted.

4(a) (ii)	**Explain why the example question would produce quantitative or qualitative data.**	2

Exemplar answers:
- It would produce qualitative data as the response would not be able to be analysed numerically. It is asking for a response to how A levels effects happiness in words, thoughts and feelings. (2 marks)
- The question was asking for words and thoughts on happiness and A levels. (1 mark)
- Any other appropriate content.

Marks	AO2
2	• Reasonable explanation of why the type of data was identified in (a)(i) with link to the research. • Appropriate terminology.
1	• Basic explanation of why the type of data was identified in (a)(i) with link to the research. • Limited terminology.
0	• Inappropriate answer given. • No response attempted.

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4(b)	**Explain how the reliability of this research could be assessed.**	**2**

Exemplar answers:

- A split-half technique could be used by splitting the questionnaire on happiness into two halves and correlating them with each other – if there is a strong positive correlation between the two halves then the questionnaire has internal reliability. (2 marks)
- Test-retest could be used giving the questionnaire on happiness to the participants a month later to see if it's consistent. (1 mark)
- Any other appropriate content.

Marks	AO2
2	• Reasonable explanation of how the reliability of this research could be assessed with link to the research. • Appropriate terminology.
1	• Basic explanation of how the reliability of this research could be assessed with link to the research. • Limited terminology.
0	• Inappropriate answer given. • No response attempted.

4(c)	**Explain how social desirability could affect the validity of this research.**	**2**

Exemplar answers:

- The students may lie about how happy they feel as they may want to be seen in a more socially desirable way and report themselves as happier than they are to appear they're enjoying A Levels. This would threaten the internal validity of the study. (2 marks)
- The validity of the study would be questioned as the students may lie about how happy they're feeling. (1 mark)
- Any other appropriate content.

Marks	AO2
2	• Reasonable explanation of how social desirability could affect the validity of this research. • Appropriate terminology.
1	• Basic explanation of how social desirability could affect the validity of this research. • Limited terminology.
0	• Inappropriate answer given. • No response attempted.

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4(d)	**One of the students, when answering the questionnaire, asked the researchers why they hadn't used an interview to collect the information.** **Explain one advantage of using an interview rather than a questionnaire.**	**2**

Credit will be given for:

- Body language can be interpreted during an interview to gain more in depth information than a questionnaire.
- More qualitative data can be gathered by the interviewer as they can respond to the interviewee's questions than in a questionnaire.
- Questions can be clarified by the researcher if the participant doesn't understand.
- Any other appropriate content.

Marks	AO3
2	• Reasonable explanation of one advantage of using an interview rather than a questionnaire. • Appropriate terminology.
1	• Basic explanation of one advantage of using an interview rather than a questionnaire. • Limited terminology.
0	• Inappropriate answer given. • No response attempted.

4(e)	**Evaluate <u>one</u> strength and <u>one</u> weakness of using random sampling**	**2+2**

Credit will be given for:

Strengths:

- It is a fair sampling technique as the researcher cannot be accused of biased in the way the sample is selected as everyone in the target population has an equal chance of being selected.

Weaknesses:

- The sample may be unrepresentative of the target population as there may be certain subgroups of the target population that are over or underrepresented in the sample.
- It is a more time-consuming compared to some other sampling techniques such as opportunity sampling.
- Any other appropriate content.

Marks	AO3
2	• Reasonable evaluation of strength/weaknesses of random sampling. • Appropriate terminology.
1	• Basic evaluation of strength/weaknesses of random sampling. • Limited terminology.
0	• Inappropriate answer given. • No response attempted.

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