GCE A LEVEL MARKING SCHEME

SUMMER 2018

A LEVEL (NEW)
PSYCHOLOGY - COMPONENT 2
A290U20-1

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INTRODUCTION

This marking scheme was used by WJEC for the 2018 examination. It was finalised after detailed discussion at examiners' conferences by all the examiners involved in the assessment. The conference was held shortly after the paper was taken so that reference could be made to the full range of candidates' responses, with photocopied scripts forming the basis of discussion. The aim of the conference was to ensure that the marking scheme was interpreted and applied in the same way by all examiners.

It is hoped that this information will be of assistance to centres but it is recognised at the same time that, without the benefit of participation in the examiners' conference, teachers may have different views on certain matters of detail or interpretation.

WJEC regrets that it cannot enter into any discussion or correspondence about this marking scheme.

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GCE A LEVEL PSYCHOLOGY - COMPONENT 2

SUMMER 2018 MARK SCHEME

Question	AO1	AO2	AO3	TOTAL
1	1			1
2	6			6
3	3			3
4	6		6	12
5			6	6
6			12	12
7		14	6	20
8	2	8		10
9	2	15		17
10		13		13
TOTAL	20	50	30	100

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Mark Scheme

SECTION A – Principles of Research
Answer **all** *questions*

1. Define the term 'target population'. **[1]**

Marks	AO1
1	• The group of individuals that a researcher is interested in studying. • Any other appropriate definition.
0	• Inappropriate answer given. • No response attempted.

2. Explain **two** weaknesses of conducting research on-line. **[3+3]**

Credit **could** be given for:

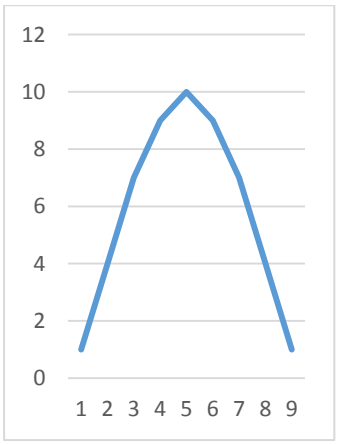
- Problems with consent: many people are used to accepting 'terms and conditions' on-line without reading them; this means participants may also do something similar with the details in the consent form and therefore not understand the aim and procedures involved with the research.
- Limited methods: most on-line research uses surveys, questionnaires and other self-report methods. There are few opportunities for experimentation and so the research may be subject to problems such as social desirability bias.
- Identification: Researchers cannot be sure that the people completing the on-line research are whom they claim to be. A piece of research aimed at adolescents might be completed by a thirty year old.
- Any other appropriate weakness.

Marks	AO1
3	• Weakness is clearly identified and reasonably described.
2	• Weakness is clearly identified and basically described.
1	• Weakness is identified.
0	• Inappropriate answer given. • No response attempted.

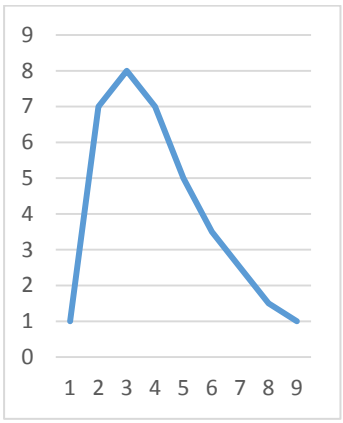
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3. Sketch the following distribution curves:

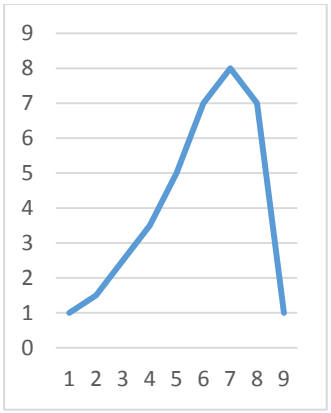
(a) Normal distribution. **[1]**



(b) Positive skew. **[1]**



(c) Negative skew. **[1]**



Marks	AO1
1	• Distribution curve is sketched appropriately.
0	• Inappropriate answer given. • No response attempted.

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4. (a) Describe how brain scans have been used in psychology. **[6]**

Credit **could** be given for:

- In MRI, the patient is placed inside a large circular magnet that causes the hydrogen atoms in the body to move. When the magnet is turned off, these revert to their original positions, producing an electromagnetic signal that is translated by the computer into pictures of brain tissue.

- In PET, a radioactive tracer is combined with a sugar (flurodeoxyglucose); a hormone (norepinephrine) or a protein (Cyclo RGDfC). A radioactive tracer is injected into the participant/patient awaiting the scan. After a period of time the patient/participant are placed into a computer scanner. The positrons smash into electrons releasing gamma rays, this emission is detected by the scanner. The detected emissions are plotted the varying levels of activity in the brain are recorded, sometimes a 3-D plot is produced.

N.B. Candidates may choose to describe examples of research from their study of Psychology where a brain scan has been used, e.g. Raine's research OR they may include descriptions of how other types of brain scans, such as fMRI, CAT are used; both are creditable.

Marks	AO1
5-6	• Reasonable description of how brain scans are used in psychology. • Good use of terminology. • Structure is logical
3-4	• Basic description of how brain scans are used in psychology. • Some appropriate terminology is evident. • Structure is mostly logical
1-2	• Superficial description or outline of how brain scans are used in psychology. • Infrequent use of appropriate terminology. • Answer lacks structure
0	• Inappropriate answer given • No response attempted

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(b) Discuss the strengths and weaknesses of using brain scans in psychology. **[6]**

Credit **could** be given for:

Advantages/Strengths

- Allows for ***objective*** assessment of brain structure/function.
- Allows investigation of ***live brains***, rather than waiting for post mortem.
- MRI is best suited for cases when a patient is to undergo the examination several times successively in the short term, because, unlike PET, it does not expose the patient to the hazards of radiation.
- PET scans reveal chemical information that is not available with other imaging techniques.

Disadvantages/Weaknesses

- Scans take a long time and can be uncomfortable for patients, not good for those with claustrophobia.
- These are extremely costly techniques and therefore not easily available for research.
- With PET, the patient has to be injected with a radioactive substance, the technique can be used only a few times.
- Only a range of activities can be investigated, due to limitations of being stuck in a machine.

- Any other appropriate strength/weakness.

N.B. Candidates may present evaluative material more relevant to other types of brain scans used in psychological research, such as EEG's, and this should be credited appropriately.

Marks	AO3
5-6	• Reasonable discussion of strengths and weaknesses of using brain scans in psychology. • Depth and range, but not in equal measure. • Structure is logical.
3-4	• Basic discussion of strengths and weaknesses of using brain scans in psychology. • Depth or range. • Structure is reasonable. **OR** • Reasonable discussion of strengths or weaknesses. • Depth and range, but not in equal measure. • Structure is logical.
1-2	• Superficial discussion of strengths and weaknesses of using brain scans in psychology. • Answer lacks structure. **OR** • Basic discussion of strengths or weaknesses of brain scans used in psychology. • Depth or range. • Structure is reasonable.
0	• Inappropriate answer given. • No response attempted.

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5. Critically assess whether non-participant observations are more appropriate than participant observations in psychology. **[6]**

Credit **could** be given for:

Comparison of the strengths and weaknesses of non-participant observations vs. participant observations

- Understanding/insight into data collected may be higher in participant observation than in non-participant observation.
- Researcher might be overwhelmed with data and have more difficulty recording data in participant observation than non-participant observation.
- Researcher may retain greater levels of objectivity in non-participant observation than in participant observation.

- Any other appropriate content.

N.B. Candidates may include illustrative detail from their studies in Psychology, this is acceptable and is creditworthy if it supports the critical assessment of either participant observation or non-participant observation.

N.B. If the answer contains a description of just one observation type, the candidate cannot gain marks as this question requires comparison.

Marks	AO3
5-6	• Reasonable assessment of non-participant and participant observations. • Depth and range, but not in equal measure. • Structure is logical.
3-4	• Basic assessment of non-participant and participant observations. • Depth or range. • Structure is reasonable.
1-2	• Superficial assessment of non-participant and participant observations. • Answer lacks structure.
0	• Inappropriate answer given. • No response attempted.

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6. (a) Evaluate the methodology used by Kohlberg (1968) in his research '*The child as a moral philosopher*'. **[6]**

Credit **could** be given for:

Use of interviews:
- Allowed Kohlberg to ask supplementary questions if necessary.
- Investigating children, so they may be less able to complete written self-reports methods.
- May be more susceptible to researcher bias.

Use of hypothetical moral dilemmas:
- Examining what the boys say they would do not what they actually would do.
- May not be relevant to the participant's life, e.g. can a 10 year old boy really relate to the Heinz scenario?
- Allowed for an objective comparison across the sample group.
- Different hypothetical moral dilemmas used with different participants; different questions used with children of different ages.

Use of longitudinal method:
- Allowed Kohlberg to track the actual development of the boys over 12 years.
- More likely to suffer from sample attrition.

Use of cross-cultural comparison:
- Allows assessment if moral development is universal or culturally specific.
- Hindered by techniques developed from one culture.
- Differences in questions asked to those in Taiwan.

- Any other appropriate evaluation.

Marks	AO3
6	• Thorough evaluation of methodological issues. • Evaluative comments are evidently relevant to the context. • Structure is logical throughout. • Depth and range included.
4-5	• Reasonable evaluation of methodological issues. • Evaluative comments show some relevance to the context. • Structure is mostly logical. • Depth and range, but not in equal measure.
2-3	• Basic evaluation of methodological issues. • Evaluative comments are generic and not appropriately contextualised. • Structure is reasonable. • Depth or range.
1	• Superficial evaluation of methodological issues. • Evaluative comments are superficial. • Answer lacks structure.
0	• Inappropriate answer given. • No response attempted.

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(b) Evaluate the sample used by Kohlberg (1968) in his research '*The child as a moral philosopher*.' **[6]**

Credit **could** be given for:

Sample age ranged from 10-28 during research
- Youngest boy was 10 at the start of the research, little evidence base for how moral development occurs before that age.

All male sample group
- Unable to generalise to females, from Kohlberg's findings.
- Acceptable scientific practice at the time Kohlberg started his research.
- Controlled for the effect of gender, which may influence moral development.

Cultural diversity in the sample group
- The main findings are based on the 75 American boys and men interviewed by Kohlberg.
- Little is known/published about the characteristics of the participants from Great Britain, Canada, Mexico, Turkey and Taiwan.

- Any other appropriate evaluation.

Marks	AO3
6	• Thorough evaluation of the sample. • Evaluative comments are evidently relevant to the context. • Structure is logical throughout. • Depth and range included.
4-5	• Reasonable evaluation of the sample. • Evaluative comments show some relevant to the context. • Structure is mostly logical. • Depth and range, but not in equal measure.
2-3	• Basic evaluation of the sample. • Evaluative comments are generic and not appropriately contextualised. • Structure is reasonable. • Depth or range.
1	• Superficial evaluation of the sample. • Evaluative comments are superficial. • Answer lacks structure.
0	• Inappropriate answer given. • No response attempted.

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SECTION B - Personal Investigations

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

INVESTIGATION ONE:
An experiment on the effect of context on an individual's perception.

7. (a) (i) Identify the experimental design used in your research and explain why this experimental design was the most appropriate for your research. **[1+3]**

Credit **could** be given for:

Identification:
- Repeated Measures.
- Independent Groups.
- Matched participants.

- Any other appropriate experimental design.

N.B. If candidate identifies a type of experiment, such as a laboratory experiment or field experiment, instead of an experimental design they can receive no credit.

Marks	
1	• Appropriate experimental design identified.
0	• Inappropriate answer given. • No response attempted.

Justification
- Strengths of identified experimental design.
- Weaknesses of alternative experimental designs.

- Any other appropriate justification.

N.B. Explanation must be relevant to the experimental design identified; if not, credit awarded identification of experimental design and not to explanation (so a maximum mark of 1 only).

Marks	**AO2**
3	• Thorough explanation given in relation to a strength of experimental design used and/or weakness of other experimental designs. • There is a logical application of the experimental design used for the purpose of their investigation.
2	• Reasonable explanation given in relation to the strength of experimental design used and/or weakness of other experimental designs. • Lacks some application of the experimental design used for the purpose of their investigation.
1	• Basic explanation given in relation to a strength of experimental design used or a weakness of other experimental designs only. • No application to the purpose of their investigation (i.e. a generic reason).
0	• Inappropriate answer given. • No response attempted.

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(ii) Identify and fully justify the inferential statistical test that you used when analysing the data collected in your experiment. **[4]**

There will potentially be differences that reflect the research choices made by each learner; credit the inferential statistical test choice if it is potentially an appropriate way of analysing the data collected in their experiment on the effect of context on an individual's perception.

Exemplar answers:

- I used a Mann Whitney test to analyse my data as the data was independent (participants were either given information illusions beforehand or not) and the level of measurement was ratio (seconds taken to identify the illusion). [3 marks]
- Any other appropriate content.

N.B. Candidates who report selecting a Spearman's Rho or any other inferential test that would not be used for an experiment, cannot receive credit.

Marks	AO2
4	• Inferential statistical test identified. **All** of the following conditions included in the justification: • Test of difference noted and linked to research. • Level of measurement noted and linked to research. • Independent or related data noted and linked to research.
3	• Inferential statistical test identified. **Two** of the following conditions included in the justification: • Test of difference noted and linked to research. • Level of measurement noted and linked to research. • Independent or related data noted and linked to research.
2	• Inferential statistical test identified. **One** of the following conditions included in the justification: • Test of difference noted and linked to research. • Level of measurement noted and linked to research. • Independent or related data noted and linked to research.
1	• Inferential statistical test identified. • No justification of the inferential statistical test chosen . **OR** • Incorrect justification of the inferential statistical test chosen.
0	• Inferential statistical test not identified. • Inappropriate answer given. • No response attempted.

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(b) Explain how you managed **two** ethical issues that arose in your research. **[3+3]**

Credit **could** be given for:

- Consideration of working with vulnerable individuals (e.g. children or elderly) – gain additional consent from appropriate responsible adult.
- Following ethical guidelines (e.g. BPS, ATP): a specific guideline might be applied to their research.
- Specific ethical issues, dealt with appropriately: confidentiality - data regarding perceptions stored securely; individual participants given numbers rather than recording their names with the results. Valid consent – participants and/or their representatives are fully aware of the real aim and procedure of the research before being asked for written consent and participating in the research.

- Any other appropriate ethical issues.

Marks	**AO2**
3	• Explanation of the ways of dealing with ethical issue used in their experiment is appropriate and detailed. • Application to the experiment with is clearly evident. • Effective use of appropriate terminology.
2	• Explanation of the way of dealing with ethical issues used in their experiment is appropriate and reasonably detailed. • Application to the experiment is reasonably evident. • Good use of appropriate terminology.
1	• Explanation of the way of dealing with ethical issues used in their experiment is appropriate, but is superficial. • Application to the experiment is limited and/or omitted. • There is little use of appropriate terminology.
0	• Inappropriate answer given. • No response attempted.

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(c) Suggest **two** ways in which your experiment could be improved. **[6]**

Credit **could** be given for:

- Changes to characteristics of sample (e.g. greater/smaller age range).
- Changes to sampling method (e.g. change from opportunity to stratified to ensure greater representativeness).
- Improving the ethical aspects (e.g. ensuring ethical guidelines were more strictly adhered to).
- Changes to the way in which the experimental variables were operationalised (e.g. using milliseconds instead of seconds to record reaction times).
- Changes to procedural detail (e.g. have participants keep their hands on the table rather than hoovering over the buzzer, until they need to react).

- Any other appropriate content.

Marks	AO3
5-6	• Two ways of improving the investigation are suggested. • Thorough analysis of why these suggestions would improve the investigation. • The structure is logical.
3-4	• Two ways of improving the investigation are suggested. • Reasonable analysis of why these suggestions would improve the investigation. **OR** • There may be only one way of improving the investigation identified, however analysis is thorough. • The structure is mostly logical.
1-2	• Two ways of improving the investigation are suggested but not analysed. **OR** • Only one way of improving the investigation is identified and analysed in a reasonable way. • Answer lacks structure.
0	• Inappropriate answer given. • No response attempted.

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INVESTIGATION TWO:

A correlational research relationship between intelligence and another psychological variable (of the learner's choice).

8. (a) Identify the fully operationalised co-variable in your research other than intelligence. **[2]**

There will potentially be substantial differences that reflect the research choices made by each learner. Exemplar statements of co-variable: Self-esteem (as measured by Rosenberg's Self Esteem Scale). [2 marks] Self-esteem score. [1 mark] • Any appropriate operationalised co-variable.	
Marks	**AO2**
2	• Co-variable is stated and clearly operationalised.
1	• Co-variable is stated but not clearly operationalised.
0	• Inappropriate answer given. • No response attempted.

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(b) With reference to your own correlational research, explain the way you dealt with reliability. **[4]**

There will potentially be differences that reflect the research choices made by each learner; credit the method used to deal with reliability if it is potentially an appropriate way of dealing with reliability of the data collected in their research in the relationship between intelligence and another psychological variable.

*Credit **could** be given for:*

Ways of dealing with issues of reliability:

- Standardisation: Train/standardise all researchers in the use of the coding system/behaviour checklist. All researchers give the same instructions.
- Operationalise: Clearly operationalise your variables or any behaviours being observed/measured.
- Remove: Remove or re-word items which were inconsistent on the scale(s) used.
- Any other appropriate way of dealing reliability.

Assessing reliability:

- Inter-rater.
- Test re-test.
- Split-half reliability.

Marks	AO2
4	• Way of dealing with reliability issue(s) identified and explanation is appropriate and detailed • Application to the research with is clearly evident.
3	• Way of dealing with reliability issue(s) identified and explanation is appropriate and reasonably detailed. • Application to the research is reasonably evident.
2	• Way of dealing with reliability issue(s) identified and explanation is appropriate, but is superficial. • Application to the research is limited and/or omitted.
1	• Way of dealing with reliability issue(s) identified.
0	• Inappropriate answer given. • No response attempted.

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(c) With reference to your own correlational research, explain the way you dealt with validity. **[4]**

There will potentially be differences that reflect the research choices made by each learner; credit the method used to ensure validity if it is potentially an appropriate way of dealing with validity of the data collected in their research in the relationship between intelligence and another psychological variable.

*Credit **could** be given for:*

Ways of dealing with validity issues:

- Control: Control extraneous variables to ensure they do not influence the dependent variable.
- Realism: Try to make the research as realistic as possible.
- Sample: Ensure the sample has been selected using a technique that makes it representative of the target population e.g. stratified sampling.
- Any other appropriate content.

Assessing validity:

- Concurrent.
- Predictive.
- Face.
- Content.
- Construct.

Marks	AO2
4	• Way of dealing with validity issue(s) identified and explanation is appropriate and detailed. • Application to the research with is clearly evident. • Effective use of appropriate terminology.
3	• Way of dealing with validity issue(s) identified and explanation is appropriate and reasonably detailed. • Application to the research is reasonably evident. • Good use of appropriate terminology.
2	• Way of dealing with validity issue(s) identified and explanation is appropriate, but is superficial. • Application to the research is limited and/or omitted. • There is little use of appropriate terminology.
1	• Way of dealing with validity issue(s) identified.
0	• Inappropriate answer given. • No response attempted.

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SECTION C – Application of research methods to a novel scenario

Answer **all** *questions*

9. A Psychology teacher was concerned about the amount of stress her students are experiencing in preparation for their upcoming A level examinations. One month before the examination, she decided to offer her students the opportunity to learn how to meditate. 17 of her students decided to learn how to meditate and practiced meditation for at least 30 minutes per day. 15 of her students decided not to learn how to meditate. As they entered the exam room, she asked each student to rate their stress levels as either 'no stress', 'some stress' or 'very stressed'. The psychology teacher decided to compare the stress ratings of those students who meditated with those students who didn't meditate using a Chi-Square test.

Table of stress ratings of those students who meditated compared with those students who didn't meditate

	No stress	Some Stress	Very stressed
Students who meditated	5	5	7
Students who did not mediate	2	3	10

(a) (i) Identify the sampling technique that was used in this research. **[1]**

Marks	AO2
1	• Opportunity (they were the students of the teacher). **OR** • Self-selected (students decided whether or not to meditate).
0	• Inappropriate answer given. • No response attempted.

(ii) Explain **one** advantage and **one** disadvantage of using this sampling technique in this research. **[2+2]**

Credit **could** be given for:

Self-selected:
Advantage: The only sampling method where the researcher knows the selected participant will definitely want to take part, unlike randomly selected participants.
Disadvantage: Self-selected volunteers are likely to be unrepresentative as they might be too nice.

Opportunity:
Advantage: The sample is unlikely to be representative.
Disadvantage: Even if asked, a person selected opportunistically can still refuse to participate.

- Any other appropriate advantage or disadvantage.

N.B. The advantage/disadvantage needs to reflect the sampling technique chosen in (c) (i).

Marks	AO2
2	• Appropriate advantage/disadvantage linked to this research.
1	• Appropriate advantage/disadvantage, however it is not linked to this research.
0	• Inappropriate answer given. • No response attempted.

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(b) (i) Define the term 'social desirability'. **[2]**

Credit **could** be given for:

- Social desirability is when a participant responds in a particular way because they think that the response is what others would find favourable, presenting themselves in the best possible light. [2 marks].
- Social desirability is when participants give a socially desirable answer. [1 mark]

Any other appropriate content.

Marks	AO1
2	• Thorough definition.
1	• Basic definition.
0	• Inappropriate answer given. • No response attempted.

(ii) Explain how social desirability might have influenced this research. **[2]**

Credit **could** be given for:

Social desirability may lead the students to say that they are very stressed because that is what is expected of students going into an examination room. [2 marks]

Social desirability may lead students to artificially lower their stress rating as they do not want to admit to being stressed to their teacher, especially if she has helped them to learn meditation. [2 marks]

In this research, it may influence the participants' responses to the researcher. [1 mark]

Participants may just say they are stressed. [1 mark].

Any other appropriate content.

Marks	AO2
2	• Appropriate explanation with links to the research.
1	• Basic explanation linked to this research.
0	• Inappropriate answer given. • No response attempted.

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(c) The psychology teacher analysed her results by using a Chi-Square test. Explain why this test was an appropriate inferential statistical test for this research. **[4]**

Credit **could** be given for:

- Test of difference: between the students who learned to meditate and those students who didn't.
- Level of Measurement: the number of students in the stress ratings were nominal level data.
- Data was independent: each participant could only be either a meditator or not and only give one stress rating.

Example answers:

A Chi ^{2} is appropriate because the teacher was looking for a difference between the students who meditated and those students who did not meditate. Each student was either a meditator or not and therefore the data is independent. Finally, the number of students in each of the stress ratings, no stress', 'some stress' or 'very stressed', are examples of nominal data as they are categories. [4 marks]
It's appropriate because its:
*A test of difference
*Independent data
*Nominal level of measurement. [2 marks]

Marks	AO2
4	• Answer contains all three correct elements needed to justify the use of a Chi Square Test and each is linked to the data collected in this research.
3	• Answer contains all three correct elements needed to justify the use of a Chi Square Test and two are linked to the data collected in this research. **OR** • Answer contains two correct elements of the three elements needed to justify the use of a Chi Square Test and each is linked to the data collected in this research.
2	• Answer contains two of the three correct elements needed to justify the use of a Chi Square Test and one is linked to the data collected in this research. **OR** • Answer contains all three elements to justify the use of a Chi Square Test but there is no link to the data collected in this research.
1	• Answer contains two of the three elements to justify the use of a Chi Square Test but there is no link to the data collected in this research. **OR** • Answer contains one of the three correct elements needed to justify the use of a Chi Square Test and it is linked to the data collected in this research.
0	• Inappropriate answer given. • No response attempted.

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Following her initial research the Psychology teacher decided to collect some qualitative data from the students who meditated.

(d) (i) Identify **one** method that could be used to collect qualitative data about the experiences of the students who meditated. **[1]**

Credit **could** be given for: Methods could include: • Semi structured interview. • Content analysis of diary. • Case Study. • Any other appropriate method that could produce qualitative data.	
Marks	**AO2**
1	• Appropriate method identified.
0	• Inappropriate answer given. • No response attempted.

(ii) Justify why the choice of method you identified in (d) (i) would be appropriate in this research. **[3]**

Credit **could** be given for: Justification of choice is likely to be based on the strengths of the method selected and it has to overtly match the method made in choice (d) (i). Example answer: Semi-structured Interview: the researcher could ask both closed and open questions; the open questions would be able to collect qualitative data about the student's experiences of meditating. It would also give the researcher the chance to ask supplementary questions if the student said something interesting about their stress levels or their experiences of meditating. (3 marks).	
Marks	**AO2**
3	• Appropriate justification with strong links to method identified for this research.
2	• Appropriate justification with some link to method identified for this research. **OR** • Basic justification with strong links to method identified for this research.
1	• Superficial justification with some link to method identified for this research. **OR** • Basic justification with no link to the method identified for this research.
0	• Inappropriate answer given. • No response attempted.

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10. A researcher wanted to investigate if individuals who have a fear of flying (aerophobes) demonstrate lower levels of anxiety if they fly in First Class than if they fly in Economy Class. The researcher asked 12 participants who had just completed a 'Flying without Fear' course to take a short flight between London and Manchester in a First Class seat. The same 12 participants were then asked to take the return flight between Manchester and London in an Economy Class seat. After each flight, the participants were asked to self-report their ratings of anxiety, using the following scale: 0 = no anxiety to 10 = highest level of possible anxiety.

Participant Number	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**	**11**	**12**
Anxiety rating after First Class flight	*5*	*3*	*5*	*5*	*4*	*3*	*5*	*6*	*2*	*4*	*6*	*4*
Anxiety rating after Economy Class flight	*7*	*3*	*6*	*5*	*6*	*5*	*6*	*5*	*8*	*6*	*9*	*8*

(a) Explain **one** disadvantage of using a self-report method to rate the anxiety of the participants in this research. **[2]**

Credit **could** be given for:

Disadvantages, such as:
- May not give an honest response.
- May lack introspective ability.
- May demonstrate a response bias to higher anxiety scores.

- Any other appropriate disadvantage.

Marks	**AO2**
2	• Appropriate disadvantage linked to this research.
1	• Appropriate disadvantage, however it is not linked to this research.
0	• Inappropriate answer given. • No response attempted.

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(b) (i) Identify the experimental design used in this research. **[1]**

Marks	AO2
1	• Repeated Measures. • Repeated Groups.
0	• Repeated. • Inappropriate answer given. • No response attempted.

(ii) Explain **one** disadvantage of using this experimental design in this research. **[2]**

Credit **could** be given for:

Order effects: the anxiety levels felt on the return flight may be higher than they would have been because the participants have already taken one flight during that day.

Order effects: the anxiety levels on the second flight might be lower because they have already experienced one flight during the day and if they managed their flying phobia well they may feel more confident and hence less anxious on the return flight.

Need for additional resources: the researcher has to take the twelve participants on two separate flights. If an Independent groups design had been used, the researcher could have just taken 24 participants and randomly allocated them to be in first or economy class on just one flight.

Marks	AO2
2	• Appropriate disadvantage linked to this research.
1	• Appropriate disadvantage, however it is not linked to this research.
0	• Inappropriate answer given. • No response attempted.

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(c) (i) Showing your calculations, calculate the mean anxiety ratings of the twelve participants after the First Class flight. **[2]**

Credit given for appropriate answer and calculations:
5+3+5+5+4+3+5+6+2+4+6+4=52
52/12 = 4.3 (recurring)

N.B. If the candidate has calculated the mean anxiety ratings of the twelve participants after the Economy Class flight, they can receive a maximum of 1 mark if they have demonstrated an appropriate method of calculation.

Marks	AO2
2	• Correct mean value given and appropriate calculations.
1	• Correct mean value given. **OR** • Correct calculations given, but final mean given is incorrect.
0	• Inappropriate answer given. • No response attempted.

(ii) Give **one** advantage and **one** disadvantage of using the mean as a measure of central tendency in this research. **[2+2]**

Credit **could** be given for:

Advantages:
- Can be used in further statistical analysis.
- Unlike the mode, there is always a mean score.

Disadvantages:
- May produce a value that no participant in the data set actually achieved.
- May be influenced by an anomalous result.

- Any other appropriate advantage or disadvantage.

Marks	AO2
2	• Appropriate advantage/disadvantage linked to this research.
1	• Appropriate advantage/disadvantage, however it is not linked to this research.
0	• Inappropriate answer given. • No response attempted.

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(d) Explain why the ethical issue 'risk of stress, anxiety, humiliation or pain' might be relevant to this research. **[2]**

Credit **could** be given for:

- Even though the participants have completed their 'Flying without Fear course', the researcher is still exposing the participants to an activity about which they have had a phobia, therefore they may be more likely to suffer from anxiety during the flights than a person with no fear of flying.
- If participants start to demonstrate anxiety during the flights, they may feel embarrassed and possibly humiliated if they show anxiety in front of other people that they know from completing their Flying without Fear course.

Any other appropriate explanation.

Marks	AO2
2	• Appropriate explanation with a link to the research.
1	• Appropriate explanation not linked to this research. **OR** • Brief identification of an appropriate explanation that has been linked to this research.
0	• Inappropriate answer given. • No response attempted.

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