A LEVEL PSYCHOLOGY

UNIT 4

Psychology: Applied Research Method

MARK SCHEME

GENERAL MARKING GUIDANCE

- Every candidate's script must be treated in the same way throughout the whole marking session.
- The mark scheme should be applied positively. It is not required for an answer to be 'perfect' to gain full marks. Candidates should be rewarded for what they have included and not penalised for leaving things out. The process is very different to marking as a teacher (i.e. it is about rewarding rather than guiding).
- Examiners should read answers carefully and not make any presumptions. Original thoughts and unusual exemplars can be credited; however, do check for accuracy of unusual answers.
- The full range of marks should be used. If the answer shows the features of the top band with no significant issues, full marks can be given. Similarly, an answer which does not answer the question should be given zero marks.
- The subjective nature of psychology inevitably requires examiners to use their professional judgement. Care should be taken however not to decide on value of the answer due to personal opinions. If the material is used appropriately to answer the question then credit should be given in accordance with the skills demonstrated and indicated in the various bands.
- Crossed out work should be marked unless the candidate has made another attempt at answering the question.
- Any rubric errors should work to the candidates advantage i.e. mark all answers completed and credit the highest scoring valid combination.
- If at any time during the marking the examiner has a concern regarding content of an answer the Team Leader or Principal Examiner should be consulted.

Indicative content
It is essential to acknowledge the subjective nature of psychology and therefore there are not always specific answers that can be included in the mark scheme. The indicative content is simply advice on each specific question outlining some possibilities; it is not prescriptive or hierarchical and candidates are not expected to mention all the materials mentioned. They are also able to refer to other studies, theories, issues etc. which would be credited based on skills shown in accordance with the guidance in the grids.

Which mark within a band?
Having decided on the overall band that is appropriate for the response given the examiner should start with the top mark in the band. If there are aspects of the answer which may not be fully representative of the band, the mark given may be lower in the band.

Quality of written communication

This issue should have a bearing only if the quality of written communication is inconsistent with the descriptor for the band in which the answer falls decided on the psychological content. In this situation, examiners may decide not to award the higher mark within the band.

Annotation to be used

√ - correct material

√+ - correct material developed

x – incorrect material

? – unclear

EV – evaluation

GEV – generic evaluation

EX – example used is appropriate

NREL – does not answer question (i.e. not relevant)

SECTION A – 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:
Correlational research on the relationship between age and reaction times

1. (a) (i) State the alternative / experimental hypothesis for your correlational investigation. [3]

Exemplar hypothesis:
• As age increases in the participant, there will be a reduction in their response times in a recognition task • There will be a relationship between age and reaction times • Any appropriate hypothesis

Marks	AO1
3	• Full alternative hypothesis stated with both variables clearly operationalised
2	• Full alternative hypothesis stated with only one variable clearly operationalised
1	• Basic alternative stated but neither variables is clearly operationalised
0	• Experimental or null hypothesis • Inappropriate answer given • No response attempted

(ii) Explain whether this alternative / experimental hypothesis was directional or non-directional. [2]

Marks	AO1
2	• Full explanation given which is appropriate in relation to the alternative hypothesis given in part a) (i)
1	• Identification of direction is appropriate in relation to the hypothesis given in part a) (i)
0	• Inappropriate answer given • No response attempted

(b) Explain how you ensured that the correlational research you carried out was ethical? [10]

Credit **could** be given for:

- Choice of participants – avoiding vulnerable individuals
- Consent – ensure fully informed consent given as far as possible (or description why not gained)
- Debrief – any post-research information or intervention
- Reference to BPS guidelines

- Any other appropriate explanation of an ethical issue

NB We cannot know if candidates have carried out the investigation – the marks given must be based on the responses to the questions only and allocated in accordance with the criteria indicated in the marking bands below.

Marks	**AO2**
9 - 10	• Explanation includes several issues and each is clearly detailed • Application of the material used is well-judged • There is depth and range to material included • Effective use of terminology
6 - 8	• Explanation includes few issues and each is detailed • Application of the material used is appropriate • There is depth and / or range to material used • Good use of terminology
3 - 5	• Explanation includes at least two issues • Application of the material used may be inappropriate or incorrect in places • There is depth or range only in material used • There is some use of appropriate terminology
1 - 2	• Basic explanation • There may only be one issue explained briefly • Application of the material is superficial • Answer does not move beyond description of ethics • There is little use of appropriate terminology • Answer lacks clarity
0	• Inappropriate answer given • No response attempted

(c) Discuss how changing **one** aspect of your sample would increase the validity of this correlational research. [5]

Credit **could** be given for:

- Changing the sample: more representative (e.g. wider age range, different sampling technique)
- Changing the method of measuring reaction time: i.e. use a more scientific tool
- Changing the location of the research: impact on ecological validity
- Improving the ethics e.g. ensuring full informed consent gained by all, confidentiality of the results

- Any other appropriate discussion

Marks	AO3
5	• The change is clearly and fully described • Excellent discussion • Balanced argument • Focus on impact on validity
3 - 4	• The change is clearly described • Good discussion • There is an attempt at giving both sides of the argument although not necessarily balanced • Focus on impact on validity
1 - 2	• The change might not be clear and / or vague (e.g. increase number of participants with no further detail) • Discussion is superficial and / or muddled
0	• Inappropriate answer given • No response attempted

INVESTIGATION TWO:
Observation of gender differences in food choices.

2 (a) (i) Describe the sampling method you used. [2]

Credit **could** be given for:

- Opportunity sampling – using those available in a named location
- Random sampling – placing the names of all those able to participate in a randomiser computer programme to generate the required number
- Stratified sampling – ensuring that there is a representation of all characteristics in proportion to percentages in the population

- Any other appropriate sampling method

Marks	AO1
2	• Full description of sampling method which is contextualised to specific investigation
1	• Sampling method described generically • Description may be muddled
0	• Inappropriate answer given • No response attempted

(ii) Explain why this sampling method was chosen. [3]

This response needs to identify strengths of their sampling method and / or the weakness of other sampling methods to explain why their choice was most appropriate for their personal investigation.

Exemplar answer:
Due to the investigation considering gender differences I needed equal numbers of male and female participants. Due to people's food choices being influenced by food allergies, cultural influences etc. I also decided to use a cross-cultural and representation of every age group from the population. I considered using self-selecting sampling by placing adverts in different locations (e.g. schools, old people's homes, temples, cafes) but I could not be sure to receive an equal response from each. I decided it was necessary to use a stratified sampling method and although this was time consuming it ensured that the results I achieved were valid in the context of my hypothesis.

Marks	AO2
3	• Full explanation given in relation to a strength of method used and / or weakness of other methods • There is a logical application of the sampling method used for the purpose of their investigation
2	• Good explanation given in relation to the strength of method used and / or weakness of other methods • Lacks some application of the sampling method used for the purpose of their investigation
1	• Basic explanation given in relation to a strength of method used or a weakness of other methods only • No application to the purpose of their investigation (i.e. generic reason)
0	• 'Quick and easy' (needs comparison to be creditworthy • Inappropriate answer given • No response attempted

(b) Suggest **two** ways your investigation could have been improved. [5]

Credit **could** be given for:

- Changes to sampling method (e.g. to use a quicker and less complicated method)
- Improving the ethical aspects (e.g. ensuring ethical guidelines were more strictly adhered to)
- Changing the methodology for gathering the data to another with greater validity
- Rewording the instructions given to participants to reduce demand characteristics and improve reliability
- Collect different types of data (e.g. quantitative rather than qualitative)
- Carry out at a different location / time

- Any other appropriate suggestion

NB The two ways can be similar in nature as long as there is a distinct analysis of the effect of the change.

Marks	**AO3**
5	• Two ways of improving the investigation are suggested • Thorough analysis of why these suggestions would improve the investigation • The answer is logical • Good use of appropriate terminology
3 - 4	• There may be only one way of improving the investigation suggested (if only one given the analysis should be thorough and detailed) • Good analysis of why the suggestion(s) would improve the investigation • Some appropriate terminology is used
1 - 2	• Only one way of improving the investigation is suggested • Analysis is basic • General statement of how the suggestion would improve the investigation (e.g. make it more valid) • Little use of appropriate terminology
0	• Inappropriate answer given • No response attempted

SECTION B – Application of research methods to novel scenarios

Answer **all** *questions.*

3. It has been found that pupils with low levels of self-confidence in reading do better when reading to an animal. A psychologist was asked to investigate whether using a dog in the class could increase reading accuracy thereby improving confidence in the skill. She measured the cortisol levels in the saliva of ten children after they had been reading in front of their peers and then again the following day after reading to a dog. Cortisol is released when an individual interprets a situation as being stressful. The results are shown in *Table 1* below:

Table 1 – Summary table of raw data, mean and standard deviation

Participant (f = female, m = male)	**Level of cortisol in saliva samples after reading (*nmol/L*)**	
	Reading to peers	**Reading to a dog**
1f	13	20
2f	40	6
3f	12	1
4f	3	9
5f	15	0
6f	7	13
1m	22	4
2m	19	3
3m	11	2
4m	8	2

(a) Calculate the median scores for the levels of cortisol when reading to a dog. Show your workings. [2]

Credit given for: • Reading to a dog: (0 1 2 2 3 4 6 9 13 20, 3+4/2 =) 3.5	
Marks	**AO2**
2	• Correct answer identified • Calculations shown
1	• Correct answer identified only
0	• Inappropriate answer given • No response attempted

(b) A Wilcoxon matched pairs signed ranks test was used to analyse the data. Explain why this was appropriate. [3]

Marks	**AO1**
Credit given for: 1 mark for each (max. 3 marks) • Data at ordinal level • Testing for a difference • Scores obtained from the same participants (in repeated measures of matched pairs)	

(c) A psychology student at Bangor University read about this research; he was interested in how children learn to read and so decided to investigate further by making several changes to the original work. He wanted to investigate whether the reading skills of children was influenced by whether they are bilingual or not (being able to speak two languages fluently). He asked 6 children from his family (all boys aged between 4 and 13) whether they would participate in a longitudinal study to measure the development in reading over three years. He arranged that the parents of the children filled in a questionnaire on the reading skills of their children once a year. Each participant was paid £50 for their involvement.

Discuss the choices made by this student in planning his research in terms of the impact on the results. [10]

Credit **could** be given for:

- Sample chosen:
  - all boys introduces gender bias as girls are believed to have different attitudes - to reading
  - all boys eliminates issue of individual differences thereby increasing population validity
  - all from same family reduces applicability of data
- Gathering of data:
  - second hand data from parents
  - social desirability effect reducing the validity and reliability
- Length of study: issues with longitudinal study (e.g. attrition)
- Ethical consideration: use of young children in research

- Any other appropriate discussion

Marks	AO3
9 - 10	• Thorough discussion dealing with several aspects of research design • There is a balanced argument presenting both sides • Focus is on the impact on the results
6 - 8	• Good discussion dealing with several aspects of research design • There is an argument presenting both sides but not necessarily balanced • Focus is on the impact on the results
3 - 5	• There is a basic discussion • Argument is one-sided • Focus not always on how results are impacted
1 - 2	• Discussion is brief and identifies issues only • Aspects of research design are identified • Not focused on how results are impacted
0	• Inappropriate answer given • No response attempted

4. It has been suggested that petting an animal can help improve the mood and health of patients recovering in hospital. Describe how a psychologist could investigate this suggestion **using an experiment**. [15]

In your answer you should include:

- the operationalisation of the independent variable (IV) and dependent variable (DV)
- details of the experimental design and participants used
- identification of **two** possible confounding variables and how you would deal with these.

Credit **could** be given for:

- Key elements: operationalised IV and DV, appropriate confounding variables (two) and how these are dealt with, sampling, experimental design
- Location
- Any instructions given
- Type of data collected
- Any other appropriate material

Marks	AO2
13 - 15	• Description includes the key elements and is clearly detailed • Application of the material used is well-judged • Effective use of terminology • The structure is logical and coherent allowing replication • It would be easy to carry out the investigation
9 - 12	• Description includes the key elements and is detailed • Application of the material used is appropriate • Good use of terminology • The structure is logical allowing replication • It would be easy to carry out the investigation
5 - 8	• Description may be lacking a key element • Application of the material used may be inappropriate or incorrect in places • There is some use of appropriate terminology • There is a reasonable structure but replication may not be possible • Not always clear how to carry out the investigation
1 - 4	• Basic description which lacks key elements • Application of the material is superficial • There is very little use of appropriate terminology • Answer lacks clarity and replication would be difficult
0	• Non-experimental method used (take care that questionnaires and observations can be used within an experiment and therefore creditable) • Inappropriate answer given • No response attempted