RESEARCH METHODS

for A-level Psychology

Answers to Question practice sheets

The experimental method, pp.13–14

Possible answers:

1 The isolation and unbiased testing of variables under controlled conditions **and/or** How the control of extraneous variables allows effect of an independent variable to be seen on a dependent variable.

2 **a)** The unbiased directing of participants to testing conditions.
b) Using an unbiased means of selection, such as coin tossing.
c) To increase the chances of forming a representative sample.

3 An IV is independent of participants' control/is manipulated by researchers.

4 Researchers define IVs in objective terms.

5 DVs are always quantifiable/measureable.

6 IV – gender of participants. DV – score in a memory test.

7 How extraneous variables are those, other than the IV, which could affect measurements of the DV if not controlled, while confounding variables are extraneous variables that were not controlled and therefore may skew/affect measurements of the DV.

8 Participant variables (factors relating to participants themselves), situational variables (factors relating to the experimental setting), experimental variables (factors relating to the researchers themselves).

9 The interaction between participants and researchers can affect results.

10 Participants try to perform what they perceive as:
- desired results
- undesired results.

Participants produce non-typical behaviour due to:
- evaluation apprehension
- pressure to perform what they perceive as socially desirable behaviour.

11 **a)** Participants not knowing what condition of a study they are in.
b) Participants having less opportunity to perform perceived desirable behaviour.

12 The ways in which researchers can unconsciously influence results.

13 Physical attributes of researchers, personal attributes of researchers, unconscious bias on the part of researchers.

14 Neither participants nor researchers being aware of which conditions participants are in when the experiment takes place.

Laboratory experiments, p.16

Possible answers:

1 The performance of research under controlled conditions with random allocation of participants to testing conditions and manipulation of an IV by researchers.

2 Strengths – high degree of control, replication, causality, isolation of variables.
Weaknesses – experimenter bias, problems of operationalisation, low ecological validity, presence of demand characteristics.

3 Presence of an IV and DV, control of variables and the random allocation of participants to conditions.

Field experiments, p.18

Possible answers:

1 The performance of research under real-world conditions with manipulation of an IV by researchers, lack of participant awareness of being studied.

2 Strengths – high ecological validity, reduced chance of demand characteristics.
Weaknesses – reduced control over extraneous variables, more difficult to replicate, ethical issues of informed consent and the right to withdraw.

3 Real-world conditions, lack of awareness from participants of being in a study.

Natural and quasi experiments, p.20

Possible answers:

1 **a)** The use of controlled conditions and a naturally varying IV.
b) The use of controlled conditions and a naturally occurring IV.

2 Strengths – can be used when laboratory and field experiments might be unethical, ease of application due to not requiring random allocation of participants or manipulation of an IV, the direct comparison of naturally occurring groups of participants.
Weaknesses – rareness of naturally varying IVs, possibility of demand characteristics, possibility of experimenter bias, difficulty of establishing causality.

3 Naturally varying IV, use of controlled conditions.

4 Naturally occurring IV, controlled conditions.

Independent groups design, p.52

Possible answers:

1 Participants performing in only one condition each during an experiment.

2 Participants performing in a condition where they made selections from three comparison lines, either alone or in the presence of pseudo-participants.

3 Your design must have participants performing in only one condition each.

4 Strengths: lack of order effects, reduced chance of demand characteristics.
Weaknesses: participant variables, participants producing only one piece of data each / twice as many participants needed compared to a repeated measure design.

Repeated measures design, p.54

Possible answers:

1 Each participant performing in all conditions of an experiment.

2 Each participant made an individual estimate of sweets in a jar before a group estimate was made and after a group estimate was made.

3 Your design must have participants taking part in each condition of your experiment.

4 Strengths: no participant variables, participants producing two (or more) pieces of data each / half as many participants needed compared to an independent measures design.
Weaknesses: possibility of order effects, increased chance of demand characteristics.

Matched participants design, p.56

Possible answers:

1 Participants being matched on important variables, with one of each pair being placed into each condition.

2 Pairs of identical (MZ) twins were used in a study of the effects of perfume on eczema, with one of each pair being placed in each of the two conditions.

3 Your design should involve pre-testing participants on important variables, with one of each pair being placed into each condition (or similar use of identical twins).

4 Strengths: absence of order effects, reduced chance of demand characteristics and participant variables.
Weaknesses: time-consuming nature of the design, difficulties of matching on important variables, twice as many participants required as with a repeated measures design.

Random sampling, p.58

Possible answers:

1 The selection of participants whose findings are generalisable to a target population.

2 Unbiased selection of participants, all members of a target population having an equal chance of being selected.

3 a) Use of random number tables, computer-generated random numbers, names out of a hat (or similar).
b) Not all members of a target population may be available for selection or be willing to participate.

4 Those not available for selection, or unwilling to participate, may have common characteristics, therefore their unavailability can create biases in selection.
5 The lack of bias in selection increases chances of representative samples, which increases chances of findings being generalisable to a target population.

Opportunity and volunteer sampling, p.60

Possible answers:

1 Selection of participants willing and immediately available to take part.
2 Increased risk of demand characteristics/non-typical behaviour.
3 Relative ease of formation.
4 Opportunity samples not unlikely to contain all elements of a target population.
5 Those available can decline to take part, leaving only those available, and who volunteer, to participate.
6 Participants selecting themselves to participate in investigations, usually in response to adverts, posters, etc.
7 Milgram placed an advertisement for participants in the 'New Haven Register' newspaper.
8 Strengths: Ease of formation (sample generates itself), reduced chance of 'screw you phenomenon'.
Weaknesses: Sample not being representative due to volunteers often being a certain 'type' of person, increased risk of demand characteristics due to volunteers wishing to 'please' researchers by giving what they think are desired responses.

Opportunity and volunteer sampling, p.62

Possible answers:

1 Initial participants, gathered by whatever means, finding additional participants of their own, who find additional participants of their own and so on.
2 Strengths: Obtaining 'hidden' participants; those not initially available to researchers, ease of formation as most of the sample generates itself.
Weaknesses: Not representative due to participants selecting further participants in a biased manner, an 'anchoring' effect occurring by initial participants selecting those similar to themselves.
3 Taking every nth person from a list to form a sample.
4 Selecting every nth person from a list, with n being a number that will generate a sufficiently large sample as to be representative.
5 Strengths: Unbiased selection increases the chances of generating a representative sample.
Weaknesses: The risk of hidden periodic traits within a population.

Stratified sampling, p.64

Possible answers:

1 Creation of a small-scale reproduction of a target population.

2 Dividing a population into sections relevant to your study and sampling randomly from each of the stratum.

3 Strengths: Selection from representative sub-sections of a target population increases the chances of finding generalisable results, random sampling from stratum ensures unbiased selection/increases chances of forming a representative sample.
Weaknesses: Knowledge of target population characteristics being required, time-consuming nature of dividing a target population into stratum and then randomly selecting from them.

Aims and hypotheses, p.67

Possible answers:

1 An aim focuses on what is to be studied and a hypothesis focuses on the possibilities of what could occur.

2 Hypotheses emerge from/are generated by the aims of a study.

3 An experimental hypothesis predicts a difference between two conditions of a study and a null hypothesis predicting no such difference.

4 An experimental hypothesis predicts a difference between two conditions of a study and a correlational hypothesis predicts a relationship between two co-variables of a study.

5 A one-tailed hypothesis predicts the direction of a difference between two conditions of a study and a two-tailed hypothesis predicts a difference between two conditions of a study, but not its direction.

6 A one-tailed hypothesis is used when there is previous research evidence to suggest the direction of a significant result.

Pilot studies and standardised instructions, p.69

Possible answers:

1 A pilot study is a small-scale pre-study.

2 Carrying out a pilot study can identify methodological faults that could be rectified and/or determine whether it is worth carrying out a study in terms of the possibility of finding a significant result.

3 A set of procedural instructions read by/to all participants.

4 Informing participants in a clear manner about the procedural requirements of a study and/or a form of control over an extraneous variable in the form of participants having different perceptions of what is required of them in a study.

Ethical considerations, p.71

Possible answers:

1 Research should be conducted in an ethical manner for the protection of participants' health and dignity, and the reputation and integrity of Psychology.

2 Informed consent is when participants are given sufficient details of a proposed study that allows them to make a considered decision as whether to participate.

3 Deception is misleading participants as to the purpose and/or procedural aspects of a study.

4 Risk that is no greater than that of everyday life.

5 Participants being informed, before the commencement of a study, that they may desist from continuing with their participation in a study at any point, including after the study has ended by having their data removed from analysis.

6 Confidentiality involves participants' names being known only to the researchers; anonymity involves data not being traceable back to named persons.

7 Offering incentives introduces the possibility of participants agreeing to take part against their actual desire to do so.

8 Participants should only be observed in situations where they would normally expect to be publicly observed.

Correlational studies, p.74

Possible answers:

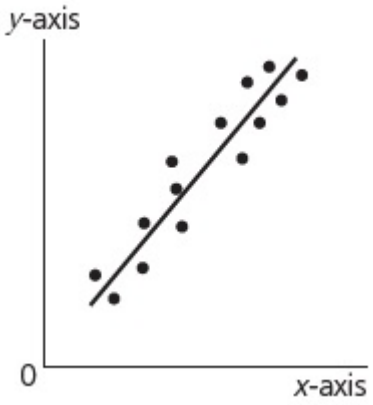
1 The level of relationship between co-variables.

2 As the value of one co-variables increases the value of a second co-variable increases shows a positive correlation, and as the value of one co-variable increases the value of a second co-variable decreases being a negative correlation.

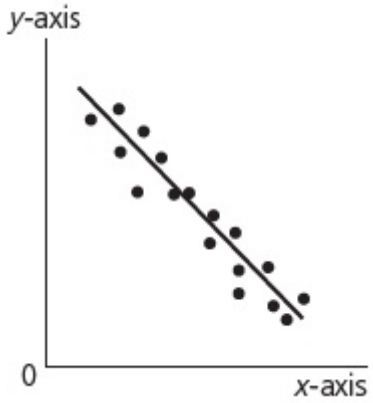
3 The numerical amount of relationship between co-variables.

4 a) A positive correlation of 12 per cent.
b) A negative correlation of 78 per cent.

5 a) Positive correlation scattergraph



b) A negative correlation scattergraph



6 Strengths: Permitting the quantification of relationships, that no manipulation of variables is required (as with an experiment), being able to ascertain the direction of relationships between co-variables.
Weaknesses: Not establishing causality, how the size of correlations can be misleading (in relation to the size of the sample assessed), only permitting the establishment of linear relationships/not permitting the establishment of curvilinear relationships.

7 The assessment of the relationship between the two co-variables of level of locus of control and level of obedience to authority.

Observational studies, p.85

Possible answers:

1 Natural observations taking place in real-life settings; controlled observations taking place under controlled laboratory conditions.

2 Zimbardo's study occurred with the researcher (Zimbardo) having a participant role within the study (prison superintendent); in Ainsworth's study, the researcher merely observed interactions between mothers, infants and strangers.

3 An overt observation is where participants are aware that their behaviour is being observed and covert observations occur where participants are unaware of their behaviour being observed.

4 Zimbardo's study was an overt observation as participants were aware that they were taking part in a prison simulation study and that their behaviour was being observed.

5 Festinger's study was a covert observation as participants (members of an end-of-the-world cult) were unaware that their behaviour was being observed.

6 Strengths: high external validity due to occurring in real-world scenarios; practicality of the method for research settings where manipulations of variables wouldn't be possible; reduction of demand characteristics in covert observations as participants aren't aware of being studied.
Weaknesses: causality not being established as variables are only observed and not manipulated under controlled conditions as with controlled experiments; risk of observer bias where observers see what they wish/expect to see; difficulty of replication due to the difficulty of exactly reconstructing the conditions of study; difficulty in observing all important behaviours; ethical danger of invasion of privacy with covert observations where participants are unaware of being studied.

Observational design, p.88

Possible answers:

1 Observers who are independent of each other, coding observed behaviour in an identical fashion.

2 Inter-observer reliability reduces the chances of observers subjectively viewing and recording observed behaviour.

3 By, before an observation occurs, observers agreeing upon behavioural categories and ratings.

4 Behavioural categories are sub-sets of targeted behaviours divided up by the use of coding systems.

5 The answer should consist of an appropriate grid/coding sheet. One that contains some relevant behavioural categories to be observed and recorded.

6 Time sampling is the recording of the number of times a target behaviour occurs within a set time period; event sampling is the number of times a target behaviour occurs within a set time period.

Case studies, p.98

Possible answers:

1 A case study is an in-depth, detailed investigation of an individual or small group.

2 Case studies are often conducted on unique or rare individuals.

3 Self-report methods, such as interviews and questionnaires.

4 Strengths: Rich detailed results that provide detailed understanding of behaviour; allow assessment of rare/unique individuals when other research methods would be unethical/impractical.
Weaknesses: Difficulty in generalising findings as results gained are for one individual/small group so are not representative; researcher bias occurring through subjective interpretation of data; reliance on full and accurate memory due to the retrospective nature of case studies.

5 Brunner's study using one Dutch family highly untypical due to their heightened levels of aggression.

Questionnaires, p.106

Possible answers:

1 Questionnaires involve participants writing answers to pre-set questions without researchers generally being present; interviews involve participants answering verbal questions face-to-face.

2 Questions being framed in a way that permits a free choice of response.

3 Quantitative data is generated about beliefs, attitudes and values.

4 Your question should permit participants to give an unrestricted answer to a question focused upon gender differences in TV viewing.

5 Questions framed in way that restricts the choice of answers.

6 Quantitative data is generated that can be subjected to statistical analysis.

7 Your question should restrict participants' responses to a question focused upon gender differences in TV viewing.

8 Strengths: Questionnaires are relatively quick and easy; lack of investigator effects as researchers are generally not present; ease of replication as questions are standardised; ability to generate quantitative and qualitative data.
Weaknesses: Inability of participants to ask for guidance as researchers aren't present; low response rate; danger of socially desirable and idealised answers being given.

9 Should have a clear aim, with short and clear questions that have been 'road tested' by conducting a pilot study and use measurement scales to aid quantification of answers.

Interviews, p.109

Possible answers:

1 Interviews involve the particpant answering verbal questions face-to-face with the interviewer/researcher; questionnaires involve the participant writing answers to pre-set questions generally without the researcher being present.

2 Structured interviews involve identical closed questions that are read to participants with answers recorded by researchers; unstructured interviews involve an informal discussion which occurs around a set topic, with different questions asked to different participants (and where required follow-on questions); semi-structured interviews involve a mixture of structured and unstructured interview technique.

3 Strengths: Interviews are suitable as a method to investigate sensitive/complex issues; guidance can be sought by participants as an interviewer is present; standardised questions and structured answers permit replication; semi-structured interviews generate both quantitative and qualitative data.
Weaknesses: The risk of interviewer effects that influence participants' responses; the unsuitability of interviews for some types of people; the risk of socially desirable and idealised answers being given.

4 Gender, age, ethnicity, level of formality of dress and language of interviewers.

Longitudinal studies, p.116

Possible answers:

1 Longitudinal studies are studies conducted over extended periods of time, often at set intervals.

2 Rutter's study was performed on the orphans at different ages/stages of development.

3 Strengths: Longitudinal studies displaying trends (changes over time); large samples are not required.
Weaknesses: Longitudinal studies are time-consuming, with no guarantee of useful findings being gained; atypical sample attrition as certain types of participants drop out over time.

Cross-cultural studies, p.118

Possible answers:

1 A research method involving comparison of people from different cultures.

2 Moghaddam's study was a comparison of people from American and Japanese cultural backgrounds on levels of conformity and locus of control.

3 Behaviours/characteristics found to be common among people of different cultural backgrounds are seen as being genetic in origin rather than learned behaviour.

4 Strengths: Permits the assessment of heritability of behaviours and characteristics; enables the identification of social/environmental factors that influence development.
Weaknesses: Difficulty in assembling similar sample and procedures in different cultural settings; danger of cultural bias where researchers interpret behaviour in terms of their own cultural groupings.

Animal studies, p.120

Possible answers:

1 Animal studies are performed to gain insight into the psychological mechanisms of animals themselves; animal studies being performed when similar studies upon humans would be impractical or unethical (on the basis that physiologies are similar).

2 **a)** The living conditions of the animals being researched upon.

b) Not lowering the fitness of animals researched upon in naturalistic (real world) settings; not subjecting animals to greater risk than those they face in everyday life.

3 Strengths: Permitting research not possible upon humans; allowing medical advancements.
Weaknesses: Inability to generalise results to humans when physiologies and/or cognitive processes are different; the existence of alternative methods of research that do not cause pain and suffering to animals.

Meta-analysis, p.122

Possible answers:

1 Meta-analyses is conducted by analysing the combined data from several similar studies.

2 Grootheest *et al.* is meta-analysis because the study combined and analysed data from 28 twin studies of the heritability of OCD to find a genetic component to the disorder.

3 Strengths: Being able to identify trends that wouldn't have been identifiable with data from single studies; enables the analysis of data relating to separate groups of participants within a sample; allows researchers to identify areas of interest for further targeted research.
Weaknesses: The possibility of a publication bias as only studies showing significant findings tend to be included, as studies not showing significant findings are not published and thus not included in meta-analyses, which can skew results; some studies into similar research areas may actually not be suitable for having their data combined due to dissimilarities between samples; when combining data from different studies, those with bigger samples will influence findings more, which can skew results.

Content analysis, p.124

Possible answers:

1 Coding units are used to create categories of characteristics and behaviour, and then the number of times a target characteristic, behaviour, etc. occurs is recorded, to form quantitative data.

2 Categories of behaviour based on what males and females are offering and seeking in relationships.

3 Strengths: It is easy to perform content analyses due to them being relatively inexpensive and non-invasive; content analyses can be used to check the results of other research methods; content analyses is the reliable as it is possible to replicate it to check the consistency of results.
Weaknesses: The descriptive nature of content analyses doesn't allow identification of reasons for behaviours and attitudes; causality cannot be established due to not being performed under controlled conditions; findings can be flawed due to the often limited/biased availability of study data.

Thematic analysis, p.126

Possible answers:

1 Thematic analysis is a qualitative (non-numerical) method of identifying, analysing and reporting themes (patterns) within a set of data, with patterns identified through data coding.

2 Familiarisation with data, coding, searching for themes, reviewing themes, defining and naming themes, writing up.

3 Strengths: Thematic analysis is able to draw conclusions from qualitative data; it is flexible as it can be used for many types of studies and data.
Weaknesses: It is relatively time consuming and complex in nature; it can be difficult to locate similar previous studies that have used thematic analysis to make comparisons with due to the newness of thematic analysis.

Descriptive statistical analysis, p.129

Possible answers:

1 **a)** Data displayed numerically in table form.
b) Data displayed pictorially in the form of graphs.
c) Data displayed verbally in the form of written descriptions.

2 Data tables display raw, unprocessed data while results tables display summaries of data.

3 Results tables containing totals, percentages and appropriate measures of central tendency and dispersion.

4 Written descriptions should contain descriptions of totals, percentages and relevant measures of central tendency and dispersion.

5 A bar chart displays non-continuous data (with the bars of the graph not touching) and a histogram displays continuous data (with the bars of the graph touching).

6 Frequency polygons are similar to histograms as data on the x-axis is continuous in both. A frequency polygon is produced by drawing a line from the mid-point top of each bar in a histogram. A frequency polygon allows two or more frequency distributions to be shown on the same graph.

7 Pie charts display the frequency of categories as percentages. The 'pie' needs to be split into sections with each section representing the frequency of a category and the sections colour coded, with a grid given to show what each section represents.

Measures of central tendency, p.132

Possible answers:

1 Measures of central tendency are averages; middle numbers in sets of data.

2 The median is calculated by arranging numbers in a set of data in numerical order and then selecting the middle number.

3 Strengths: Medians are less affected by outliers than the mean and so are a more preferable measure for sets of non-symmetrical data; the median can be applied to both ordinal and interval data.
Weaknesses: The median is a less representative measure than the mean as it doesn't include all the numbers in a set of data in its calculation; the median cannot be used in further mathematical calculations, limiting its value as a means of analysis.

4 Calculate the mean by adding up all the numbers in a set of data and then dividing by the number of scores.

5 Strengths: The mean is the most accurate measure as it uses all the numbers in a set of data in its calculation; the mean closely relates to standard deviation, the most commonly used measure of dispersion.
Weaknesses: The mean can be skewed by outliers and thus be an unrepresentative measure; the mean is only applicable to interval level data.

6 The mode is calculated by selecting of the most commonly occurring number in a set of data.

7 Strengths: The mode is less affected by outliers than the mean and so is a more preferable measure for sets of non-symmetrical data; the mode can be applied to nominal, ordinal and interval level data.
Weaknesses: The mode is a less representative measure than the mean as it doesn't include all the numbers in a set of data in its calculation; there can be several modal scores in a set of data, or no modal score at all, limiting its usage.

Measures of dispersion, p.134

Possible answers:

1 Measures of dispersion show the variability (spread) of scores in a set of data.

2 The range is calculated by subtracting the lowest score from the highest scores in a set of data.

3 Strength: The range's simplicity of calculation compared to standard deviation
Weakness: The range is used less often than standard deviation as it only has worth when a set of data has no outliers.

4 Standard deviation is calculated by: assessing the mean in a set of data then subtracting the mean from each individual score, squaring each of these scores, calculating the sum of the squares, calculating the variance by dividing the sum of squares by the number of scores in the set of data minus 1 and, finally, calculating standard deviation by assessing the square root of the variance.

5 Strength: Standard deviations isn't as negatively affected by outliers as the range because it uses all scores in a set of data in its calculation.
Weakness: Standard deviation is more time-consuming and complex to calculate than the range.

Inferential statistical analysis, p.137

Possible answers:

1 Researchers use inferential tests to assess if differences between conditions are ones that are significant/beyond the boundaries of chance.

2 Probability concerns the degree of certainty that a difference/relationship is beyond the boundaries of chance.

3 There is always, however small, a chance that a difference between conditions occurred due to chance factors.

4 5 per cent (0.05) is the accepted significance level.

5 A 5 per cent significance level strikes a balance between making a Type I and a Type II error.

6 A Type I error occurs when a significant difference/relationship is found and there wasn't one. (With a suitable example.)

7 A Type II error occurs when a significant difference/relationship is not found and there was one. (With a suitable example.)

Interpretation of significance and the selection of inferential statistical tests, p.139

Possible answers:

1 An observed value is the calculated numerical result of a statistical test.

2 The comparison is made to ascertain if the observed value is significant, allowing a null hypothesis to be rejected.

3 Whether a hypothesis is experimental or correlational; whether a hypothesis is one- or two-tailed; the number of participants or participant pairs; the level of significance used.

4 Whether a difference or relationship is being sought; the level of data involved; what experimental design has been used.

Types of data, p.141

Possible answers:

1 Nominal data occurs as frequencies/tallies/how often an event occurs. (With a suitable example.)

2 Compared to ordinal and interval levels of data, nominal data is uninformative, doesn't inform how strong preferences are, is less able to detect significant differences in sets of data.

3 Ordinal data is data that is rankable, can be put in order. (With a suitable example.)

4 Interval data has uniform measurements/standardised units of measurements. (With a suitable example.)

5 Interval data is more sensitive/more able to detect significant differences in sets of data than either nominal or ordinal data.

Sensitivity of tests, p.143

Possible answers:

1 **a)** The sign test and Chi-Squared test.
b) The Mann-Whitney test and Wilcoxon signed-matched ranks test.
c) The Independent (unrelated) t-test and repeated (related) t-test.
d) The Spearman's rho test and Pearson's Product Moment test.

2 Tests based on nominal data are less able to detect significant differences between sets of data.

3 Tests based on interval data are more able than those using nominal and ordinal data to detect significant differences between sets of data.

The sign test, p.146

Possible answers:

1 A sign test may be selected if the researcher has nominal data, is searching for a difference between sets of data, or has used a repeated measures design.

2 A sign test works by comparing the number of scores that go in one direction to the number of scores that go in another direction to see if any difference in the direction of scores is significant/beyond chance factors.

3 By comparing the calculated value of 's' against a critical value (gained from a critical value table with consideration of whether a one- or two-tailed hypothesis has been used, what level of significance is required and how many pairs of data there were) to see if the value of 's' is less than or equal to the critical value.

The Chi-Squared test, p.150

Possible answers:

1 A Chi-Squared test may be chosen if the researcher has nominal data, is searching for a difference between sets of data, or has used an independent groups design.

2 A Chi-Squared test works by comparing expected frequencies of scores to observed frequencies to see if they are significant/beyond chance factors.

3 The researcher would know if a Chi-Squared test result was significant or not by comparing the calculated value of χ^2 against a critical value (gained from a critical value table with consideration of whether a one- or two-tailed hypothesis has been used, how many degrees of freedom there are and what level of significance is required) to see if the value of χ^2 is greater than or equal to the critical value.

The Mann-Whitney 'U' test, p.155

Possible answers:

1 A Mann-Whitney test may be selected if there is ordinal data, a search for a difference between sets of data is being carried out, if an independent groups design has been used.

2 A Mann-Whitney test works by comparing the ranks of two sets of data to see if they differ significantly from each other.

3 A researcher would know if the result was significant or not by comparing the calculated value of U (or U' if it's smaller) against a critical value (gained from a critical value table with consideration of whether a one- or two-tailed hypothesis has been used, the number of ranked pairs there are and what level of significance is required) to see if the value of U (or U') is smaller than or equal to the critical value.

The Wilcoxon signed-matched ranks test, p.158

Possible answers:

1 A Wilcoxon signed-matched ranks test may be chosen if there is ordinal data, researchers are searching for a difference between sets of data, or have used a repeated measures design.

2 The Wilcoxon test calculates whether there is a significant difference in paired observations by ranking differences in pairs of scores, with the sum of the ranks of the less frequent sign assessed to see whether it differs significantly from a critical value.

3 A researcher would know if the result was significant or not by comparing the calculated value of T against a critical value (gained from a critical value table with consideration of whether a one- or two-tailed hypothesis has been used, the number of ranked pairs there are and what level of significance is required) to see if T is smaller than or equal to the critical value.

The Independent t-test, p.162

Possible answers:

1 An Independent t-test might be selected if there is interval data, if searching for a difference between sets of data, or if an independent groups design has been used.

2 An Independent t-test works by comparing the size of the differences in the mean scores of two sets of data drawn from independent (non-related) sources to see if they differ significantly from each other.

3 A researcher would know if the result was significant or not by comparing the calculated value of T against a critical value (gained from a critical value table with consideration of whether a one- or two-tailed hypothesis has been used, the number of degrees of freedom there are and what level of significance is required) to see if T is greater than or equal to the critical value.

The Repeated t-test, p.164

Possible answers:

1 A Repeated t-test may be used if there is interval data, if one is searching for a difference between sets of data, or if an independent groups design has been used.

2 A Repeated t-test works by comparing the size of the differences in the mean scores of two sets of data drawn from related (not independent) sources to see if they differ significantly from each other.

3 A researcher would know if the result was significant or not by comparing the calculated value of T against a critical value (gained from a critical value table with consideration of whether a one- or two-tailed hypothesis has been used, the number

of degrees of freedom there are and what level of significance is required) to see if T is greater than or equal to the critical value.

The Spearman's rho test, p.167

Possible answers:

1 A Spearman's rho test may be selected if there is ordinal data, one is searching for an association (relationship) between sets of data, if a correlational design has been used.

2 A Spearman's rho test works by comparing the ranks of two sets of data to see if they are significantly similar to each other.

3 A researcher would know if the result was significant or not by comparing the calculated value of rho against a critical value (gained from a critical value table with consideration of whether a one- or two-tailed correlational hypothesis has been used and what level of significance is required) to see if rho is greater than or equal to the critical value.

The Pearson's Product Moment test, p.170

Possible answers:

1 A Pearson's Product Moment test may be chosen if interval data is available, if one is searching for an association (relationship) between sets of data, or if a correlational design has been used.

2 A Pearson's Product Moment test works by comparing two sets of data drawn from the same person or event to see if they are significantly similar to each other.

3 A researcher know if the result was significant or not by comparing the calculated value of r against a critical value (gained from a critical value table with consideration of whether a one- or two-tailed correlational hypothesis has been used and what level of significance is required) to see if r is greater than the critical value.

The elements of a research study, p.172

Possible answers:

1 Research studies are published in sections in a certain order so all the information is presented in a standardised way and therefore studies can be replicated (repeated exactly) to check the validity of their findings.

2 **a)** The abstract concisely summarises a study in terms of previous research, aims and hypotheses, methodology, results, conclusions and suggestions for future research.
b) The introduction gives details of why a study was conducted in terms of relevant theories and previous research.

3 The aims relate the goals/intentions of a study while the hypotheses make predictions based upon the aims.

4 The methodology section details the research methods used in a study, as well as the design, techniques, materials and the procedure used.

5 Descriptive findings merely document the results of a study, while inferential findings, based upon statistical analysis, draw conclusions about the likelihood of results being significant ones (beyond the boundaries of chance).

6 The discussion section showcases findings in terms of explanations, relationship to previous research, limitations and modifications, implications and ideas for future research.

7 The conclusions section presents a summary of key decisions/opinions reached.

8 The references section gives details of sources used within the research.

9 The appendices section displays details of instructions given to participants, raw data, calculations, materials used, consent forms, etc.