



Oxford Cambridge and RSA

# AS Level Psychology

H167/01 Research methods

**Monday 15 May 2017 – Afternoon**

**Time allowed: 1 hour 30 minutes**



**You must have:**

- a calculator
- a ruler



|               |                       |  |  |  |  |                  |  |  |  |  |
|---------------|-----------------------|--|--|--|--|------------------|--|--|--|--|
| First name    | StemUp Model Solution |  |  |  |  |                  |  |  |  |  |
| Last name     |                       |  |  |  |  |                  |  |  |  |  |
| Centre number |                       |  |  |  |  | Candidate number |  |  |  |  |

## INSTRUCTIONS

- Use black ink.
- Complete the boxes above with your name, centre number and candidate number.
- Answer **all** the questions.
- Write your answer to each question in the space provided. If additional space is required, use the lined page(s) at the end of this booklet. The question number(s) must be clearly shown.
- Do **not** write in the barcodes.

## INFORMATION

- The total mark for this paper is **75**.
- The marks for each question are shown in brackets [ ].
- Quality of extended response will be assessed in questions marked with an asterisk (\*).
- This document consists of **16** pages.

**SECTION A – Multiple choice**

Answer **all** the questions. You should put the letter of the correct answer in the box provided.

- 1 One billion (1,000,000,000) is a very big number. The brain is estimated to have one hundred billion neurons (nerve cells). What is this written in standard form?

- A  $10^8$
- B  $10^9$
- C  $10^{10}$
- D  $10^{11}$

Your answer

D

[1]

- 2 A psychologist conducted a study investigating reaction times of a group of young and old people to press a key on a keyboard in response to a specific stimuli (e.g. a smiley face).

- (a) The mean reaction time for young people was 0.7245 seconds. What is this written to two decimal places?

- A 0.7
- B 0.72
- C 0.73
- D 0.74

Your answer

B

[1]

- (b) The mean reaction time for old people was 1.1834 seconds. What is this written to two significant figures?

- A 1.1
- B 1.18
- C 1.2
- D 1.9

Your answer

C

[1]

3 What is the symbol for 'much greater than'?

- A <
- B <<
- C >
- D >>

Your answer

D

[1]

4 If a researcher checks to see if participants have answered questions that ask about the same thing in the same or similar way, what is this?

- A external reliability
- B external validity
- C internal reliability
- D internal validity

Your answer

C

[1]

5 What term refers to whether research relates to everyday life?

- A ecological validity
- B face validity
- C internal validity
- D population validity

Your answer

A

[1]

6 A psychologist conducted a survey assessing beliefs in the paranormal with a sample of 144 people.

(a) 25% of people said they believe in ghosts. How many people is this?

- A 25
- B 36
- C 40
- D 72

Your answer

B

[1]

(b) 24 people said they believe aliens exist. What fraction of the sample is this?

- A 1/3
- B 1/4
- C 1/6
- D 2/3

Your answer

C

[1]

(c) What is the ratio of people who believe in ghosts to aliens?

- A 1:4
- B 2:3
- C 3:2
- D 4:1

Your answer

C

[1]

7 Which of these core studies is an example of the longitudinal research method?

- A Bandura et al. (transmission of aggression)
- B Casey et al. (neural correlates of delay of gratification)
- C Milgram (obedience)
- D Sperry (split brains)

Your answer

B

[1]

8 What sampling technique was used in the study by Bocchiaro et al. investigating disobedience and whistle-blowing?

- A opportunity
- B random
- C self-selected
- D snowball

Your answer

C

[1]

9 What type of a rating scale is a semantic differential?

- A one that has images at either end
- B one that has numbers at each point along the scale
- C one that ranges from 'strongly agree' to 'strongly disagree'
- D one with words having opposite meaning at either end

Your answer

D

[1]

10 Which of these descriptive statistics would it be possible to use with nominal data?

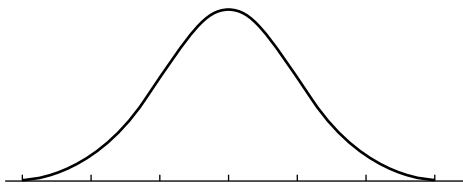
- A mean
- B median
- C mode
- D range

Your answer

C

[1]

11 What type of distribution is this?



- A bimodal
- B negatively skewed
- C normal
- D positively skewed

Your answer

C

[1]

12 Which of these is not a measure of dispersion?

- A mean
- B range
- C standard deviation
- D variance

Your answer

A

[1]

## SECTION B – Research design and response

Answer **all** the questions in Section B.

**Do like me.** The extent to which people mimic each other's behaviour (e.g. fold arms at the same time) is often regarded as an indicator of how well they are getting on together, especially if in a romantic relationship. A psychologist wants to conduct a study using the observation method to investigate this by studying the behaviour of couples having a drink in a bar. Behaviour was observed every 10 minutes during a period from 8 pm to 10 pm.

- 13 Write an appropriate research aim for this study.

*The aim of this study is to investigate the extent to which couples in a romantic relationship mimic each other's behaviour (for example folding their arms at the same time) while having a drink together in a bar, and whether this shows how well they are getting on.* [2]

- 14 (a) Describe **one** strength of using the observation method in this study.

*One strength is that the couples are observed in a real bar doing what they would normally do on a night out, so the mimicking behaviour recorded (such as both partners folding their arms or picking up their drinks at the same time) is natural and spontaneous rather than being produced for a researcher. This gives the study high ecological validity, so the findings about how much couples mimic each other should generalise to real romantic relationships.* [3]

- (b) Describe **one** weakness of using the observation method in this study.

*One weakness is the risk of observer bias. The psychologist already expects couples who are getting on well to mimic each other, so when watching a couple in a dimly lit, crowded bar they may interpret ambiguous actions, such as two people reaching for their drinks a few seconds apart, as mimicking. Their view may also be blocked by other customers so some copying is missed. This lowers the validity of the data on how much couples mimic each other.* [3]

- 15 (a) Describe **one** strength of using time sampling in this study.

*One strength of time sampling is that recording the couples' behaviour at fixed 10 minute intervals between 8 pm and 10 pm means the observer only has to note what each couple is doing at that moment, so they can watch several couples across the whole two hour period instead of just a few minutes. This makes the data more representative of a full evening in the bar, as mimicking may change as the couple relax and drink more, so the findings are more valid.* [3]

- (b) Describe **one** weakness of using time sampling in this study.

*One weakness is that behaviour is only recorded at each 10 minute point, so any mimicking that happens in between (for example a couple both laughing and leaning forward at 8.15 pm) is missed and never recorded. A couple might copy each other a great deal during the evening but happen to be doing different things at every 10 minute check, so the data would underestimate how much they mimic each other and the findings would be less valid.* [3]

- 16 Explain the difference between a naturalistic observation and a controlled observation.

*A naturalistic observation takes place in the participants' own real-life setting, such as couples in a bar, where the researcher does not interfere with the situation, whereas a controlled observation takes place in a setting the researcher has deliberately set up or arranged for the study, such as a laboratory room, where aspects of the situation are controlled.* [2]

17 Explain how you would conduct a study using the naturalistic observation method to investigate the extent to which couples mimic each other's behaviour whilst having a drink in a bar. Justify your decisions as part of your explanation. You must refer to:

- the use of behavioural categories (5 to 7 categories of behaviour required)
- time sampling
- protection of participants.

You should use your own experience of practical activities to inform your response.

*I would carry out a covert naturalistic observation of 10 couples drinking in a local bar between 8 pm and 10 pm, so that their mimicking is natural and not changed by knowing they are being watched. My behavioural categories would be: 1 picking up their drink at the same time, 2 folding their arms, 3 leaning forward, 4 laughing or smiling together, 5 touching their hair or face, 6 crossing their legs. I chose these because they are clear, observable actions that can be ticked on a tally chart without interpretation, so a second observer would record them in the same way and inter-rater reliability would be high. In my own practical, an observation of students using phones in the common room, vague categories like 'being sociable' were coded differently by my partner and me, so this time I would operationalise each category precisely and pilot the tally chart first.*

*I would use time sampling, recording for 30 seconds every 10 minutes from 8 pm to 10 pm (13 observation points) and noting whether the two partners were showing the same category of behaviour. I chose this because in my practical, continuous event sampling was impossible to keep up with when several people acted at once; fixed intervals let me watch several couples and still cover the whole evening, so the data is representative.*

*To protect participants, I would observe only in a public bar where people expect to be seen, take no names, photos or recordings, record each couple anonymously as Couple 1, 2 and so on, and stop observing any couple who seemed upset or began to argue. I would also leave a notice at the bar explaining the study so people could ask for their data to be withdrawn. I did this in my practical and it is justified because it respects the couples' privacy and dignity and prevents any psychological harm from feeling watched on a date.* [12]

18 What does inter-rater reliability refer to in this study?

*Inter-rater reliability refers to the extent to which two or more observers watching the same couples in the bar record the same mimicking behaviours in the same way. For example, if both observers were watching a couple at 8.30 pm and both ticked 'arms folded at the same time' on their tally charts, their ratings would agree. For this to happen the behavioural categories must be clearly defined so every observer interprets copying behaviour identically, and their scores should correlate strongly.* [3]

19 (a) Suggest **one** open question that could have been used if the researcher had used the self-report method instead of the observation method in this study.

*Open question: "How do you think your behaviour changes to match your partner's when you are out having a drink together in a bar?" Participants could write whatever they wanted in their own words.*

..... [2]

(b) Suggest **one** closed question that could have been used if the researcher had used the self-report method instead of the observation method in this study.

*Closed question: "Do you ever pick up your drink or fold your arms at the same time as your partner when you are having a drink in a bar?" Yes / No / Not that I am aware of*

..... [2]

## SECTION C – Data analysis and interpretation

Answer **all** the questions in Section C.

**Funny research.** Laughing can be good for us and make us feel better in many ways but psychologists do not know much about why people laugh or what people find funny or why. To investigate this a psychologist used the self-report method to ask people questions about their experiences of laughing and what they find funny. Some of the data that was collected is presented below.

| Do you like it when people play practical jokes on you? |      |
|---------------------------------------------------------|------|
| 'yes'                                                   | 'no' |
| 120                                                     | 80   |

| Do you laugh with your mouth open? |       |      |
|------------------------------------|-------|------|
|                                    | 'yes' | 'no' |
| males                              | 63    | 17   |
| females                            | 38    | 22   |

| Findings when people were asked which category of jokes do you find the funniest |                  |
|----------------------------------------------------------------------------------|------------------|
| Category                                                                         | Number of people |
| technology                                                                       | 15               |
| health                                                                           | 35               |
| work                                                                             | 10               |
| family                                                                           | 30               |
| news                                                                             | 20               |
| sex                                                                              | 50               |

- 20 What is the ratio of people who like it when practical jokes are played on them to those that do not? Present your answer in its simplest form and show your workings.

*People who like practical jokes : people who do not = 120 : 80*

*Divide both sides by 40:  $120 / 40 = 3$  and  $80 / 40 = 2$*

*So the ratio in its simplest form is 3 : 2*

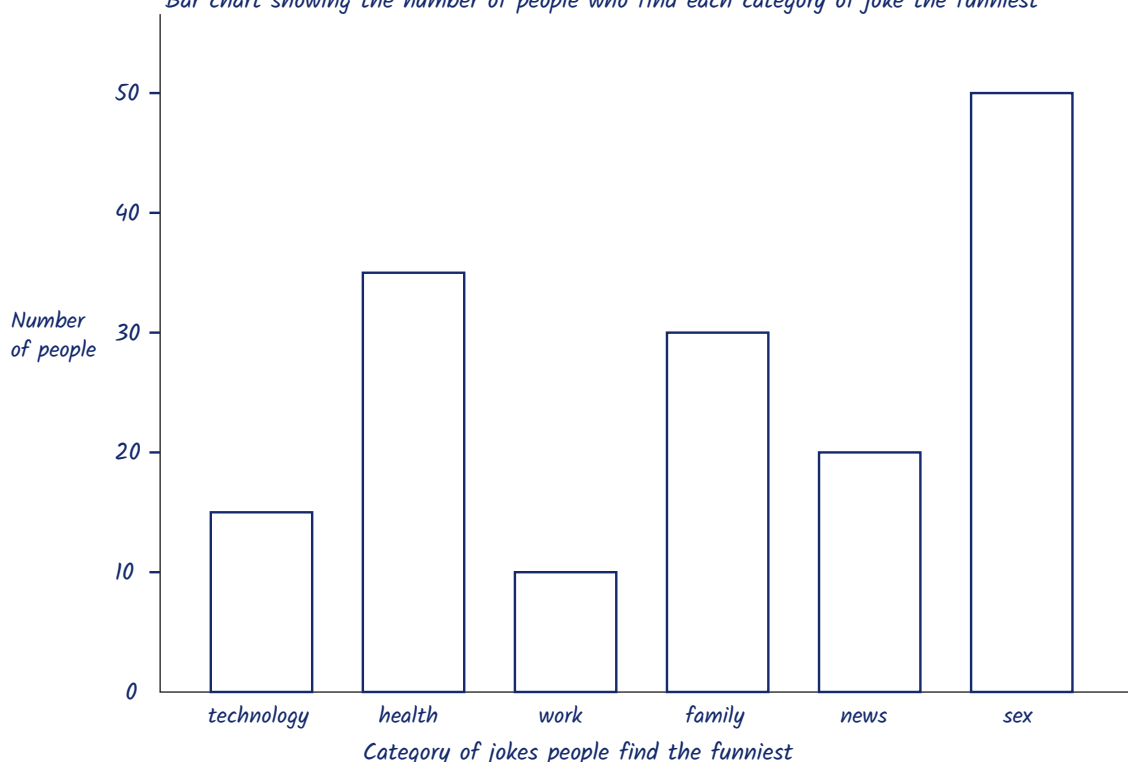
[2]

- 21 Identify the appropriate inferential statistical test to use in this study to analyse the data obtained from the question asking about whether people laugh with their mouth open or not. Give reasons for your answer.

*The appropriate test is a chi-square test. This is because the study is looking for a difference between two groups (males and females) in whether or not they laugh with their mouth open, so it is a test of difference. The design is independent measures because males and females are separate, unrelated groups. The data is nominal, as each person is simply placed in a category ('yes' they laugh with their mouth open or 'no' they do not) giving frequency counts.* [3]

- 22 (a) Draw a fully labelled bar chart to display the data from the question asking people about which category of jokes they find the funniest.

*Bar chart showing the number of people who find each category of joke the funniest*



[4]

- (b) Calculate the percentage of people who reported 'sex' as the category of jokes they found the funniest. Show your workings and present your finding to 2 significant figures.

*Total number of people = 15 + 35 + 10 + 30 + 20 + 50 = 160*

*Number who found 'sex' jokes the funniest = 50*

*Percentage = 50 / 160 x 100 = 31.25%*

*To 2 significant figures this is 31%*

[3]

- 23 (a) What level of data is collected in this study? Justify your answer.

*The data collected is nominal. This is because people were simply put into named categories, such as which category of joke (technology, health, sex and so on) they find the funniest or whether they laugh with their mouth open, and the number of people in each category was counted up as a frequency.*

[2]

- (b) Evaluate the use of this level of data in this study.

*A strength of nominal data is that it is quick and easy to collect, as people simply say yes or no or pick the category of joke they find funniest, and the frequencies are easy to analyse with a chi-square test and display in a bar chart. However, it is limited because it gives no detail about the strength of people's opinions, for example how much funnier sex jokes are than news jokes, or why someone likes practical jokes being played on them, so it tells us little about why people laugh.*

[3]

- 24 Outline **two** conclusions from the data collected in this study.

*Conclusion 1: More people (120) liked having practical jokes played on them than disliked it (80), which suggests that most people enjoy being the target of a joke and do not mind being made fun of, perhaps because it makes them feel included.*

*Conclusion 2: Far more males (63 out of 80) than females (38 out of 60) laugh with their mouth open, suggesting that females are more self-conscious about how they look when laughing and so control their laughter more than males do.*

[4]

- 25 Suggest **two** ways that social desirability may have influenced the data collected in this study.

*1 People may have been too embarrassed to admit that they find jokes about sex the funniest, because this could make them look rude or immature, so they may have chosen a more respectable category like health or news. This would make the number of people choosing 'sex' lower than it really is.*

*2 Participants may have said they like it when people play practical jokes on them because admitting they dislike it could make them seem to have no sense of humour, so the 'yes' total of 120 may be inflated and not reflect how people really feel.*

[4]

END OF QUESTION PAPER

[illegible]



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