Oxford Cambridge and RSA

# Friday 17 May 2024 – Morning

## A Level Psychology

### H567/01 Research methods

**Time allowed: 2 hours**

**You must have:**
- a ruler (cm/mm)
- a scientific or graphical calculator

Please write clearly in black ink. **Do not write in the barcodes.**

Centre number | | | | | | Candidate number | | | | |

First name(s) _____

Last name _____

**INSTRUCTIONS**
- Use black ink. You can use an HB pencil, but only for graphs and diagrams.
- Write your answer to each question in the space provided. If you need extra space use the lined pages at the end of this booklet. The question numbers must be clearly shown.
- Answer **all** the questions.

**INFORMATION**
- The total mark for this paper is **90**.
- The marks for each question are shown in brackets **[ ]**.
- Quality of extended response will be assessed in questions marked with an asterisk (*).
- This document has **20** pages.

**ADVICE**
- Read each question carefully before you start your answer.

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## Section A

### Multiple Choice

For each question write the letter in the box.

**1** Which type of reliability is checked by a correlation between the data of two researchers?

**A** inter-rater

**B** replicability

**C** split-half

**D** test-retest

Your answer ☐ **[1]**

**2** Which of the following has a naturally occurring independent variable?

**A** both field and laboratory experiments

**B** field experiment

**C** laboratory experiment

**D** quasi experiment

Your answer ☐ **[1]**

**3** Which of these indicates there is less than a 2.5% chance of the null hypothesis being true?

**A** $p < 2.50$

**B** $p < 0.25$

**C** $p < 0.025$

**D** $p > 0.0025$

Your answer ☐ **[1]**

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**4** Which of the following is the best measure of central tendency to use if there is an extreme value in the data set?

**A** both the mean and the mode

**B** mean

**C** median

**D** mode

Your answer ☐ **[1]**

**5** If the standard deviation of a data set is 9, what is the variance?

**A** 3

**B** 4.5

**C** 9

**D** 81

Your answer ☐ **[1]**

**6** Which of these always involves a mixture of standardised pre-prepared questions and ones that are made up as the interview progresses?

**A** panel interviews

**B** semi-structured interviews

**C** structured interviews

**D** unstructured interviews

Your answer ☐ **[1]**

**7** Which of these is true of the calculated value (observed value) in a statistical test of significance?

**A** it is always a whole number

**B** it is based on the data collected

**C** it is in a table of values

**D** it will always be a number between 1 and –1

Your answer ☐ **[1]**

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**8** What is 57.638 written to two significant figures?

**A** 57

**B** 57.63

**C** 57.64

**D** 58

Your answer ☐ **[1]**

**9** How many conditions were there in **Experiment 2** of Loftus and Palmer's (1974) study of eyewitness testimony?

**A** one

**B** two

**C** three

**D** four

Your answer ☐ **[1]**

**10** How was the dependent variable operationalised in **Experiment 1** of Moray's (1959) study of auditory attention?

**A** memory of digits

**B** memory of hearing own name

**C** memory of songs

**D** memory of words

Your answer ☐ **[1]**

**11** Which of these examples of research would collect nominal data?

**A** a correlation study investigating the relationship between a person's height (in centimetres) and their level of confidence (on a scale of 0-to-20)

**B** a self-report study that asks people to rate how happy they are on a scale of 0-to-100

**C** an experiment that records blood pressure as a measure of anxiety to two different stressors

**D** an observation study which records whether customers say 'thank you' or not to the checkout assistant in a shop

Your answer ☐ **[1]**

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**12** Which of these does **not** feature when writing a reference using the Harvard system?

**A** name of the university the research was conducted at

**B** surname of the researcher(s)

**C** title of the research

**D** year of publication

Your answer ☐ **[1]**

**13** Which correlation coefficient shows the strongest relationship between the variables studied?

**A** – 0.94

**B** – 0.87

**C** + 0.72

**D** + 0.86

Your answer ☐ **[1]**

**14** Which of these is an ethical consideration Milgram (1963) used to make his research more ethical?

**A** debrief

**B** deception

**C** informed consent

**D** protection from harm

Your answer ☐ **[1]**

**15** What is the name of the process where research is evaluated prior to publication?

**A** peer review

**B** preliminary review

**C** professional review

**D** prospective review

Your answer ☐ **[1]**

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**16** Which measure of dispersion only uses the lowest and highest values in a data set?

**A** range

**B** standard deviation

**C** variance

**D** none of the above

Your answer ☐ **[1]**

**17** What is the name of the rating scale that involves two words with opposite meaning?

**A** Likert

**B** semantic differential

**C** sequential

**D** verbal parallel

Your answer ☐ **[1]**

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**18** A psychologist wanted to see how age might affect memory. Group A were aged 20–30 years and Group B were aged 60–70 years. All participants were shown the same 20 objects on a screen for 10 seconds and then asked to immediately recall as many of the objects as they could.

| Group A 20–30 years | Number of items recalled | Group B 60–70 years | Number of items recalled |
|---|---|---|---|
| 1 | 17 | 1 | 14 |
| 2 | 13 | 2 | 12 |
| 3 | 17 | 3 | 5 |
| 4 | 11 | 4 | 13 |
| 5 | 16 | 5 | 14 |
| 6 | 12 | 6 | 13 |
| 7 | 19 | 7 | 13 |

**(a)** Which of these is the mean score of the 20–30 year old participants?

**A** 12

**B** 15

**C** 16

**D** 17

Your answer ☐ **[1]**

**(b)** Which of these results from the table above would be classed as anomalous data?

**A** 5

**B** 13

**C** 17

**D** 19

Your answer ☐ **[1]**

**(c)** Which extraneous variable has been controlled for in this research?

**A** gender

**B** IQ

**C** occupation

**D** task

Your answer ☐ **[1]**

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## Section B

### Research design and response

**Slipping up can be good**

Psychologists have investigated many ways that could improve how children learn. However, most of these have concentrated on studying the effect of different teaching styles, rather than focusing on the child themself. A psychologist taking a more child-focused approach wants to study if being more relaxed affects concentration levels. They want to investigate if young children can concentrate better when wearing comfortable slippers on their feet compared to wearing shoes. The study is to be conducted in one large primary school with 240 children on the register.

**19** Write a one-tailed alternative hypothesis for this study.

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..... **[3]**

**20*** Explain how you would conduct a study using the laboratory experimental method to investigate if wearing slippers affects a child's ability to concentrate. Justify your decisions as part of your explanation.

You must refer to:

- how you would use random sampling to obtain 30 participants for the study
- the experimental design you would use in this study
- how you would operationalise the dependent variable to obtain quantitative data
- the control of one extraneous variable.

You should use your own experience of practical activities to inform your response. **[15]**

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**21**

**(a)** Suggest **one** open question you could use to obtain some additional information for this study.

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**(b)** Outline **one** strength of the use of open questions in this study.

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**22** Outline **one** strength of conducting this study as a laboratory experiment.

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**23** Outline **one** way you could uphold the ethical consideration of respect in this study.

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**24** Explain **two** factors that could affect the external validity of this study.

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**[6]**

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**Turn over for the next question**

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## Section C

## Data analysis and interpretation

**Sounds familiar**

Memory can be influenced by many different things. However, there are techniques which we can use to improve our memory. One such technique involves reading aloud the information we want to remember. A psychologist investigated this by giving participants a set of 30 words to try and remember. Six participants studied the words in silence. A different group of six participants were instructed to read the words aloud when trying to learn them. The data collected is presented in the table below.

| **Number of words correctly recalled (max. 30)** | | | | | |
|---|---|---|---|---|---|
| **Reading aloud group** | | | **Silent study group** | | |
| **Participant** | **Score** | **Rank** | **Participant** | **Score** | **Rank** |
| a | 24 | 9.5 | a | 14 | 2 |
| b | 27 | 11 | b | 16 | 3 |
| c | 21 | 6 | c | 12 | 1 |
| d | 20 | 5 | d | 29 | 12 |
| e | 23 | 8 | e | 17 | 4 |
| f | 22 | 7 | f | 24 | 9.5 |
| $n_1 = 6$ | | | $n_2 = 6$ | | |

**25** Outline **one** conclusion that can be made from the raw data presented in this table.

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**26** Draw a fully labelled bar chart showing the mean number of words recalled in each condition. Plot the means to two significant figures. **[4]**

**27** Give **one** reason why the Mann-Whitney U test is the appropriate inferential test to use to analyse the data from this study.

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..... **[2]**

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**28** Before using the formula for the Mann-Whitney U test, the data obtained must be ranked. In the results, two participants have the same score of 24. Explain how this is dealt with when ranking the data.

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..... **[3]**

**29**

**(a)** Calculate the U value for the Mann-Whitney U test for the data collected in this study. Show your workings. You may use the formula presented below.

U = the smaller of $U_1$ and $U_2$

Where $U_1$ is …

$$U_1 = R_1 - \frac{n_1(n_1 + 1)}{2}$$

and $U_2$ is …

$$U_2 = R_2 - \frac{n_2(n_2 + 1)}{2}$$

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..... **[5]**

**(b)** How is the critical value used to determine if the findings are statistically significant?

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**30** Explain what $p > 0.05$ would mean if it appeared as part of the significance statement when reporting the findings from this study.

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**31**

**(a)** Explain **one** strength of using quantitative data in this study.

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**(b)** Explain **one** weakness of using quantitative data in this study.

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**32** This study used an independent measures design.

**(a)** Identify **one** strength and **one** weakness of this design.

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**[2]**

**(b)** Outline **two** ways that an independent measures design could affect the validity of this study.

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**[4]**

**33** Which section of the write-up of a practical report would each of the following appear in, other than the abstract?

**(a)** Details of sample obtained.

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**(b)** Suggestions for possible future research.

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**END OF QUESTION PAPER**

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## EXTRA ANSWER SPACE

If you need extra space use these lined pages. You must write the question numbers clearly in the margin.

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