Psychology

Research Topic Questions

1

Read the item and then answer the questions that follow.

Participants in an experiment were shown a film of a robbery. The participants were then divided into two groups. One group was interviewed using a standard interview technique and the other group was interviewed using the cognitive interview technique. All participants were then given an 'accuracy score' (out of 20) based on how closely their recall matched the events in the film (20 = completely accurate, 0 = not at all accurate).

The results of the experiment are shown in the table below.

The median accuracy score for the standard interview and the cognitive interview

	Standard interview	Cognitive interview
Median	10	15

(a)   Sketch an appropriate graphical display to show the median accuracy scores in the table above.

(6)

(b)   The experiment used an independent groups design.

Explain how this study could have been modified by using a matched pairs design.

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(4)
(Total 10 marks)

2   Read the item and then answer the question that follows.

Studies of attachment often involve observation of interactions between mother
and baby pairs like Tasneem and Aisha. Researchers sometimes write down
everything that happens as it takes place, including their own interpretation of
the events.

Explain how such observational research might be refined through the use of behavioural
categories.

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(Total 4 marks)

3 Read the item and then answer the questions that follow.

A psychologist wanted to see if creativity is affected by the presence of other people. To test this he arranged for 30 people to participate in a study that involved generating ideas for raising funds for a local youth club. Participants were randomly allocated to one of two conditions.

Condition A: there were 15 participants in this condition. Each participant was placed separately in a room and was given 40 minutes to think of as many ideas as possible for raising funds for a local youth club. The participant was told to write down his or her ideas and these were collected in by the psychologist at the end of the 40 minutes.

Condition B: there were 15 participants in this condition. The participants were randomly allocated to 5 groups of equal size. Each group was given 40 minutes to think of as many ideas as possible for raising funds for a local youth club. Each group was told to write down their ideas and these were collected by the psychologist at the end of the 40 minutes.

The psychologist counted the number of ideas generated by the participants in both conditions and calculated the total number of ideas for each condition.

Total number of ideas generated in Condition A (when working alone) and in Condition B (when working in a group)

	Condition A Working alone	Condition B Working in a group
Total number of ideas generated	110	75

(a) Identify the experimental design used in this study **and** outline **one** advantage of this experimental design.

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(3)

(b)   Describe **one other** experimental design that researchers use in psychology.

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(2)

(c)   Apart from using random allocation, suggest **one** way in which the psychologist might have improved this study by controlling for the effects of extraneous variables. Justify your answer.

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(2)

(d)   Write a suitable hypothesis for this study.

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(3)

(e)   From the information given in the description, calculate the number of participants in each group in Condition B.

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(1)

Read the item and then answer the questions that follow.

The psychologist noticed that the number of ideas generated by each of the individual participants in **Condition A** varied enormously whereas there was little variation in performance between the 5 groups in **Condition B.** He decided to calculate a measure of dispersion for each condition.

(f)   Name a measure of dispersion the psychologist could use.

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(1)

(g)   The psychologist uses the measure of dispersion you have named in your answer to
        question (f). State how the result for each condition would differ.

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(1)

(h)   Explain how the psychologist could have used random allocation to assign the 15
        participants in **Condition B** into the 5 groups.

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(3)

(i)   Using the information given in the table above, explain how the psychologist could further
        analyse the data using percentages.

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(2)

(j)   At the end of the study the psychologist debriefed each participant. Write a debriefing that
      the psychologist could read out to the participants in **Condition A.**

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Extra space _____

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(6)
(Total 24 marks)

4

Read the item and then answer the questions that follow.

In a study of androgyny, a group of 100 18-year-old students completed a
self-report sex-role inventory. The inventory gave two sets of scores: a
femininity score and a masculinity score. Each set of scores was on a scale of
0–20, with 0 representing no masculinity or no femininity and 20 representing
extreme masculinity or extreme femininity.

The researchers calculated measures of central tendency for the masculinity
scores. They found that the mean masculinity score was 10.3, the median
masculinity score was 9.5 and the mode masculinity score was 7.

(a)   Sketch a graph to show the most likely distribution curve for the masculinity scores in this
      study. Label the axes of your graph and mark on it the positions of the mean, median and
      mode.

(3)

(b)   What sort of distribution does your graph show?

(1)
(Total 4 marks)

5

The following results are percentages of participants who gave the maximum shock, in variations of Milgram's experiment into obedience to authority.

Condition	% Participants obeying
Experimenter and two obedient confederates are in the same room as the participant.	92.5%
Experimenter is in the same room as the participant.	65%
Experimenter is in a different room from the participant.	20.5%
Experimenter and two disobedient confederates are in the same room as the participant.	10%

What do these results suggest about the power of the confederates in variations of Milgram's study?

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Extra space _____

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(Total 4 marks)

6 Outline **one** strength and **one** weakness of using correlations in stress research.

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Extra space _____

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(Total 4 marks)

7 A psychologist carried out a research study to investigate the effects of institutional care. To do this, she constructed a questionnaire to use with 100 adults who had spent some time in an institution when they were children.

She also carried out interviews with ten of the adults.

(a)   For this study, explain **one** advantage of collecting information using a questionnaire.

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(3)

(b)   In this study, the psychologist collected some qualitative data. Explain what is meant by qualitative data.

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(2)

(c)   Write **one** suitable question that could be used in the interviews to produce qualitative data.

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(2)

(d)   Identify **two** ethical issues that the psychologist would need to consider in this research.

Explain how the psychologist could deal with **one** of these issues.

Ethical Issue 1 _____

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Ethical Issue 2 _____

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How the psychologist could deal with one of these issues _____

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(5)
(Total 12 marks)

8 A researcher studied the effect of context on memory. He used an independent groups design. He tested participants in one of two conditions.

In **Condition 1**, a group of 20 schoolchildren learned a list of 40 words in a classroom. This group then recalled the words in the same classroom.

In **Condition 2**, a different group of 20 schoolchildren learned the same list of 40 words in a classroom. This group then recalled the words in the school hall.

The researcher recorded the results and compared the mean number of words recalled in each condition.

(a) Identify the independent variable in this study.

(1)

(b) Use your knowledge of retrieval failure to explain the likely outcome of this study.

(3)

(c) In this study, participants were randomly allocated to one of the two conditions. Explain how this might have been carried out.

(2)

(d) In this study, the researcher used an independent groups design. The researcher decided to repeat the study with different participants and to use a matched pairs design.

Explain how these participants could be matched and then allocated to the conditions.

(2)
(Total 8 marks)

9 The report was subjected to peer review before it was published in a journal.

What is meant by peer review?

(Total 2 marks)

10

Dave, a middle-aged male researcher, approached an adult in a busy street. He asked the adult for directions to the train station. He repeated this with 29 other adults.

Each of the 30 adults was then approached by a second researcher, called Sam, who showed each of them 10 photographs of different middle-aged men, including a photograph of Dave. Sam asked the 30 adults to choose the photograph of the person who had asked them for directions to the train station.

Sam estimated the age of each of the 30 adults and recorded whether each one had correctly chosen the photograph of Dave.

(a)   Identify **one** aim of this experiment.

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(2)

(b)   Suggest **one** reason why the researchers decided to use a field experiment rather than a laboratory experiment. .

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(2)

(c)   Name the sampling technique used in this experiment. Evaluate the choice of this sampling technique in this experiment.

Sampling technique _____

Evaluation _____

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Extra space _____

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(4)

(d)   Identify **one** possible extraneous variable in this experiment. Explain how this extraneous
variable could have affected the results of this experiment.

Extraneous variable _____

How this extraneous variable could have affected the results of this experiment

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(4)
(Total 12 marks)

11

A psychology student was asked to design an investigation to see whether taking exercise could
increase feelings of happiness. She proposed to do an experiment. She decided to recruit a
sample of volunteers who had just joined a gym, by putting up a poster in the gym. She planned
to carry out a short interview with each volunteer and to give each one a happiness score. She
intended to interview the volunteers again after they had attended the gym for six weeks and to
reassess their happiness score to see if it had changed.

The psychology student's teacher identified a number of limitations of the proposed experiment.

Explain **one or more** limitations of the student's proposal **and** suggest how the investigation
could be improved.

(Total 10 marks)

12

A group of researchers conducted a survey about helping behaviour. They asked an opportunity sample of 200 university students to complete a questionnaire. The questionnaire contained open and closed questions. The following are examples of questions used in the questionnaire:

A   Do you think that you are generally a helpful person?   Yes   No

B   What do you think most people would do if they were driving in the rain and saw a woman standing alone next to her broken-down car?

C   How would you react if someone walking in front of you slipped and fell over?

(a)   Identify an open question from **A**, **B** or **C** above. Give **one** advantage of using open questions.

Example of open question (write **A**, **B** or **C**) _____

(1)

Advantage _____

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(1)

The researchers then categorised the responses given to question **C** above.
The results are shown in **Table 1**.

Table 1: The number of participants who gave the following responses to question C

Help the person	Ignore the person	Laugh at the person	Other reactions
137	23	31	9

(b)   What conclusion might the researchers draw from the responses given in **Table 1** above? Justify your answer.

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(2)

On the basis of the responses to question **C**, the researchers decided to conduct a further investigation. The aim was to see whether an individual's helping behaviour might be affected by the presence of other people.

The participants were an opportunity sample of 40 first-year students. The students were told that they would be interviewed about university life. Each student was met by an interviewer and asked to wait. The interviewer then went into the next room. After two minutes there was a loud noise and a cry of pain from the next room.

Twenty participants took part in **Condition 1** and the other 20 participants took part in **Condition 2**.

Condition 1 Each participant waited alone.

Condition 2 Each participant waited with another person who had previously been told by the researchers not to react to the sounds from the next room.

The researchers counted the number of participants in each condition who went to help the interviewer in the next room.

(c)   Write a suitable experimental hypothesis for the further investigation.

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(2)

(d)   Suggest **one** extraneous variable that might be present in the further investigation. Explain why this variable should be controlled and how it could be controlled.

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(3)

(e)   Identify the experimental design used in the further investigation. Explain why this is a suitable experimental design for this study.

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(3)

(f)   Explain how random sampling might have been used to select the participants in the further investigation.

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(2)

The results of the further investigation are given below.

Table 2: Number of participants who went to help the interviewer in Condition 1 and Condition 2

Condition 1 (Participant waiting alone)	Condition 2 (Participant waiting with another person)
20	9

(g)   Suggest a suitable graphical display that could be used to represent the data in **Table 2**. Justify your choice.

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(2)

(h)   After the further investigation, the researchers debriefed the participants. Discuss **two** points that the researchers should have included when they debriefed the participants.

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(4)
(Total 20 marks)

13   The report was subjected to peer review before it was published in a journal.

Explain why peer review is an important aspect of the scientific process.

(Total 4 marks)

14   Some studies have suggested that there may be a relationship between intelligence and happiness. To investigate this claim, a psychologist used a standardised test to measure intelligence in a sample of 30 children aged 11 years, who were chosen from a local secondary school. He also asked the children to complete a self-report questionnaire designed to measure happiness. The score from the intelligence test was correlated with the score from the happiness questionnaire. The psychologist used a Spearman's rho test to analyse the data. He found that the correlation between intelligence and happiness at age 11 was +0.42.

(a)   Write an operationalised non-directional hypothesis for this study.

(2)

(b)   Identify an alternative method which could have been used to collect data about happiness in this study. Explain why this method might be better than using a questionnaire.

(4)

(c)   A Spearman's rho test was used to analyse the data. Give **two** reasons why this test was used.

(2)

Extract from table of critical values from Spearman's rho(r_s) test

N (number of participants)	Level of significance for a two-tailed test	
	0.10	0.05
	Level of significance for a one-tailed test	
	0.05	0.025
29	0.312	0.368
30	0.306	0.362
31	0.301	0.356

Calculated r_s must equal or exceed the table (critical) value for significance at the level shown.

(d) The psychologist used a non-directional hypothesis. Using the table above, state whether or not the correlation between intelligence and happiness at age 11 (+0.42) was significant. Explain your answer.

(3)

(e) Five years later, the same young people were asked to complete the intelligence test and the happiness questionnaire for a second time. This time the correlation was –0.29.

With reference to **both** correlation scores, outline what these findings seem to show about the link between intelligence and happiness.

(4)
(Total 15 marks)

15 A researcher believed that there is a biological basis to aggression in males. She predicted that there would be a significant difference between the levels of the hormone testosterone in aggressive males and the levels of the hormone testosterone in non-aggressive males. In order to test her prediction, the researcher statistically analysed the levels of testosterone in saliva samples from 20 aggressive males and 20 non-aggressive males.

Outline **three** ways in which the study described above could be considered to be scientific.
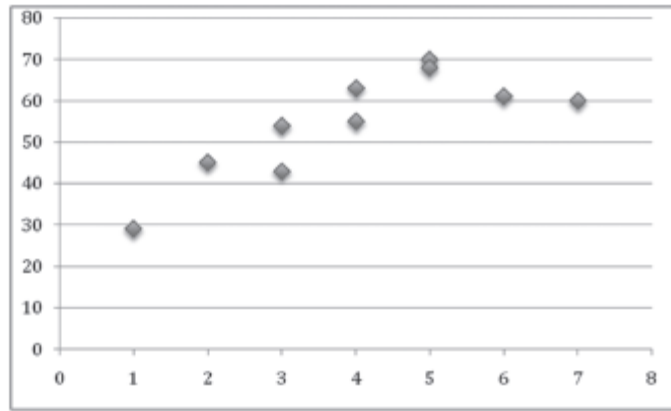
(Total 3 marks)

16 Research has shown that there is a relationship between stress and illness.
The figure below shows the number of days off work through illness in a year and scores on a stress questionnaire, where a high score indicates more stress.

**Relationship between days off work in a year
through illness and stress scores**

Scores on stress questionnaire

Number of days off work in a year through illness

What does the figure above tell you about the relationship between stress and illness?

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Extra space _____

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(Total 2 marks)

17

A researcher used content analysis to investigate how the behaviour of young children changed when they started day care.

He identified a group of nine-month-old children who were about to start day care.

He asked the mother of each child to keep a diary recording her child's behaviour every day for two weeks before and for two weeks after the child started day care.

(a) Explain how the researcher could have used content analysis to analyse what the mothers had written in their diaries.

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Extra space _____

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(4)

(b)   Explain **one or more** possible limitations of this investigation.

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Extra space _____

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(4)
(Total 8 marks)

18   A psychologist used an independent groups design to investigate whether or not a cognitive interview was more effective than a standard interview, in recalling information. For this experiment, participants were recruited from an advertisement placed in a local paper. The advertisement informed the participants that they would be watching a film of a violent crime and that they would be interviewed about the content by a male police officer.

The psychologist compared the mean number of items recalled in the cognitive interview with the mean number recalled in the standard interview.

(a)   Name the sampling technique used in this experiment.

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(1)

(b)   Suggest **one** limitation of using this sampling technique.

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(2)

(c)   Identify the independent variable **and** the dependent variable in this experiment.

Independent variable _____

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Dependent variable _____

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(2)

(d)   Explain **one** advantage of using an independent groups design for this experiment.

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(2)

(e)   Discuss whether or not the psychologist showed an awareness of the British Psychological
Society (BPS) Code of Ethics when recruiting participants for this experiment.

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(3)
(Total 10 marks)

19   Briefly outline **two** problems that might arise when making generalisations on the basis of
psychological research findings.

(Total 4 marks)

20

(a) One technique used in cognitive interviews is 'report everything'. When using this technique, the police officer in this investigation read the following instructions to the participants:

"Please tell me everything you can remember about what you saw in the film. Do not leave anything out, even the small details you think may be unimportant."

Identify **one other** technique which could have been used by the police officer in this cognitive interview. Write down the instructions that he could have read out to the participants.

Technique _____

_____

Instructions to participants _____

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(3)

(b) The psychologist also recorded the number of correct items recalled and the number of incorrect items recalled in each type of interview. The following results were obtained:

	Cognitive Interview	Standard Interview
Mean number of correct items recalled	45	32
Mean number of incorrect items recalled	8	8

From these results, what might the psychologist conclude about the effectiveness of cognitive interviews?

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(2)
(Total 5 marks)

21 A student teacher was interested in the relationship between empathy (consideration and feelings for others) and the time spent reading fiction. She decided to investigate whether or not such a relationship was present in children.

The student teacher designed her own questionnaire to measure empathy in 8-year-old children. The higher the score achieved, the greater the empathy. Twenty children, all from one school, took part. Each child completed the questionnaire individually.

The student teacher designed another questionnaire to measure 'time spent reading fiction'. Each child was given this questionnaire to take home and complete with his or her parents over a four-week period. 'Time spent reading fiction' included the time spent by parents reading to the child as well as the time the child spent reading independently. Using the responses to this questionnaire, the student teacher calculated how much time per week, on average, each child spent reading fiction.

The data obtained are shown in the graph below.

Scattergram of children's scores on a test of empathy and the average number of hours spent reading fiction per week.
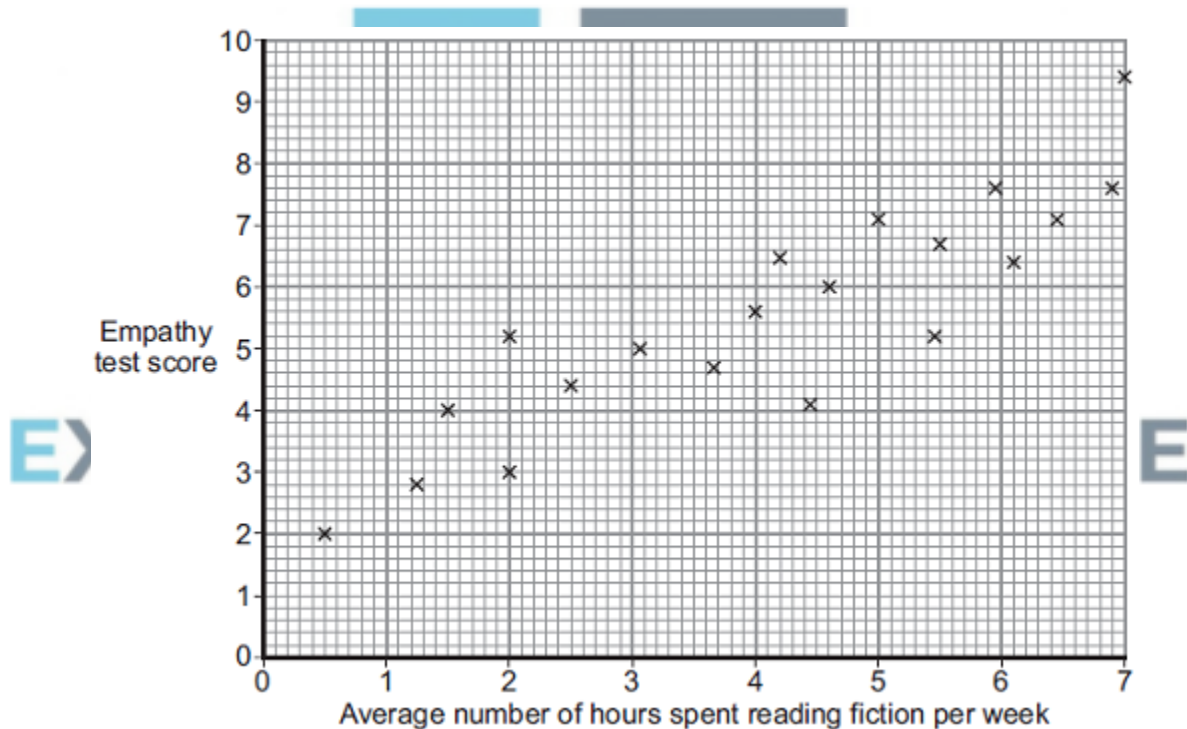
(a) Outline the relationship between empathy and the average number of hours spent reading fiction per week shown in the graph above.

(1)

(b) Name an appropriate test to determine whether or not there is a significant relationship between the two variables in the graph above. Justify your answer with reference to levels of measurement.

(2)

The student teacher decided to use a two-tailed test.

(c)   Outline **one** way in which the student teacher could have assessed the validity of the empathy questionnaire.

(2)

(d)   Apart from the issue of validity, identify and briefly explain **one** methodological limitation of the study.

(2)

(e)   Explain why it was appropriate for the student teacher to use a correlation study rather than an experiment.

(3)

(f)   The student teacher noticed that some students on her course commented that they were better able to recall information if they could read the information rather than listen to it in lectures.

Design an experiment to test the following hypothesis:

'People who are given written information will recall more than people who hear information in spoken form.'

In your answer, you should refer to the following and justify your design decisions:

•   the variables to be considered

•   the experimental design to be used

•   the sample

•   relevant materials

•   an outline of the proposed procedurr.

(8)
(Total 18 marks)

22 A psychodynamic psychologist wished to investigate the function of dreams. He asked five friends to keep a 'dream diary' for a week by writing a descriptive account of their dreams as soon as they woke up in the morning. He interpreted the content of their dreams as an expression of their repressed wishes.

Referring to the study above, explain why psychodynamic psychologists have often been criticised for neglecting the rules of the scientific approach.

(Total 3 marks)

23

Two groups of patients took part in a trial to compare the effectiveness of two different drug therapies. One of the groups was given **Drug A** and the other group was given **Drug B**. All patients completed a rating scale at the start of a ten-week course of treatment and again at the end of the course. This scale measured the severity of symptoms.

The **Drug A** group had an average score of 9 before the therapy and an average score of 4 at the end of the course.

The **Drug B** group had an average score of 7 before the therapy and an average score of 5 at the end of the course.

Sketch and label a bar chart to illustrate the data.
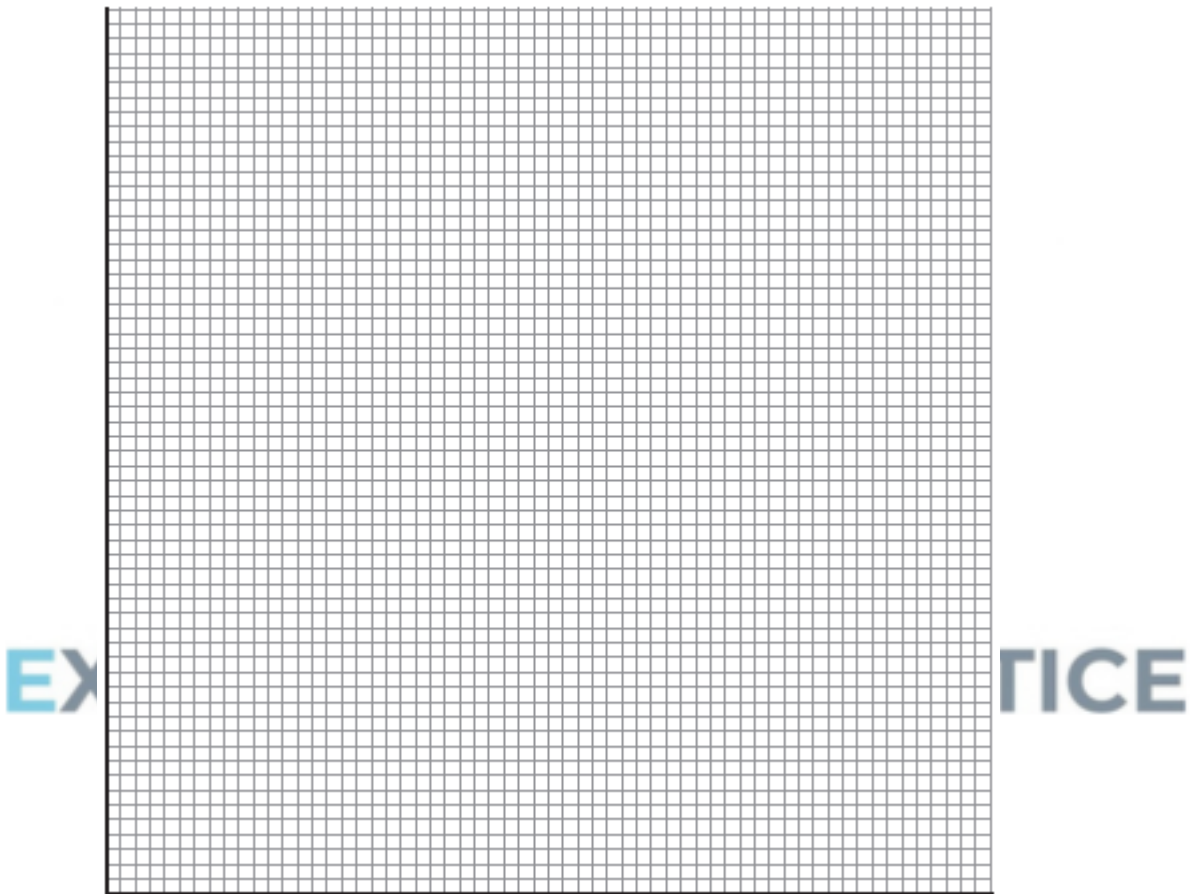
(Total 4 marks)

24

(a)   Describe **one** way in which psychologists have investigated caregiver-infant interaction in humans. Refer to a specific study in your answer.

(3)

(b)   Evaluate the way of investigating caregiver-infant interaction that you have described in your answer to part (a). Do **not** refer to ethical issues in your answer.

(3)
(Total 6 marks)

25

A psychologist wanted to see whether or not there is a difference in the expectations that men and women have of their own numeracy skills. She obtained a sample of 15 men and 15 women from a factory. She conducted her study in two parts.

In the **first part** of the study, the psychologist said to each participant: "I want you to estimate how many marks you think you will get on a maths test that is suitable for 14-year-old children. If the test has a maximum score of 50, what mark do you think you will get?"

The psychologist recorded the estimate given by each participant and calculated the median estimates for the men and for the women.

The results of the study are given in **Table 1**.

Table 1: Median estimated maths test scores for men and women

	Median estimated maths test score
Men	31
Women	19

(a)   Explain how a median score is calculated.

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(1)

(b)   Identify the dependent variable in this study.

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(1)

(c)   Write a suitable hypothesis for this study.

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(2)

(d)   Identify and explain the experimental design used in this study.

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(2)

(e)   Explain how the psychologist could have obtained a random sample of 15 men and a random sample of 15 women for this study.

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(3)

(f)   What conclusion could the psychologist draw from the median estimated scores in **Table 1**? Justify your answer.

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(2)

In the **second part** of the study, each participant took a 30-minute maths test suitable for 14-year-old children. The test took place under examination conditions. The psychologist marked the test. The maximum mark was 50.

The results of the maths test are given in **Table 2**.

Table 2: Median maths test scores for men and women

	Median maths test score
Men	25
Women	25

(g)   Taking the results from **both** parts of the study (Table 1 and Table 2), what can the psychologist now conclude?

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(3)

(h) After both parts of the study had been completed, the psychologist needed to debrief the participants.

Write a debrief that the psychologist could read out to the participants.

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(4)

(i) This psychologist did not conduct a pilot study. Explain **one** reason why psychologists sometimes conduct pilot studies.

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(2)
(Total 20 marks)

26 A researcher investigated whether people with obsessive-compulsive disorder (OCD) are more aware of their own heartbeat than people who do not have OCD. A matched pairs design was used. This involved 10 people with OCD and 10 people without OCD. The researcher asked each participant to estimate how fast his or her heart was beating (in beats per minute) and this was compared to his or her actual heartbeat. It was found that people with OCD were more accurate at estimating their own heartbeat than people without OCD.

(a) Identify the independent variable in this study.

(1)

(b) This study is a quasi-experiment. Explain why this study is a quasi-experiment.

(2)

(c) The researcher used a matched pairs design. Identify **one** relevant variable that could have been used to match participants in this study.

(1)

(d) Outline **one** advantage of using a matched pairs design in this study.

(2)
(Total 6 marks)

27 In an observational study, 100 cars were fitted with video cameras to record the driver's behaviour. Two psychologists used content analysis to analyse the data from the films. They found that 75% of accidents involved a lack of attention by the driver. The most common distractions were using a hands-free phone or talking to a passenger. Other distractions included looking at the scenery, smoking, eating, personal grooming and trying to reach something within the car.

(a) What is content analysis?

(2)

(b) Explain how the psychologists might have carried out content analysis to analyse the film clips of driver behaviour.

(4)

(c) Explain how the two psychologists might have assessed the reliability of their content analysis.

The psychologists then designed an experiment to test the effects of using a hands-free phone on drivers' attention. They recruited a sample of 30 experienced police drivers and asked them to take part in two computer-simulated driving tests. Both tests involved watching a three-minute film of a road. Participants were instructed to click the mouse as quickly as possible, when a potential hazard (such as a car pulling out ahead) was spotted.

Each participant completed two computer-simulated driving tests:

- Test A, whilst chatting with one of the psychologists on a hands-free phone

- Test B, in silence, with no distractions.

The order in which they completed the computer tests was counterbalanced.

(3)

(d) Explain why the psychologists chose to use a repeated measures design in this experiment.

(3)

(e) Identify **one** possible extraneous variable in this experiment. Explain how this variable may have influenced the results of this experiment.

(3)

(f) Explain **one or more** ethical issues that the psychologists should have considered in this experiment.

(4)

(g) Write a set of standardised instructions that would be suitable to read out to participants, before they carry out Test A, chatting on a hands-free phone.

The computer simulator measured two aspects of driver behaviour:

- the number of hazards detected by each driver

- the time taken to respond to each hazard, in seconds.

The mean scores for each of these measures is shown in the table below.

Table to show the mean number of hazards detected and mean reaction times in seconds for Test A and Test B

Mean scores	Test A: with hands-free phone	Test B: in silence
Number of hazards detected	26.0	23.0
Reaction time in seconds	0.45	0.27

The psychologists then used an inferential statistical test to assess whether there was a difference in the two conditions.

(5)

(h) Identify an appropriate statistical test to analyse the difference in the number of hazards detected in the two conditions of this experiment. Explain why this test of difference would be appropriate.

They found no significant difference in the number of hazards detected ($p > 0.05$), but there was a significant difference in reaction times ($p . 0.01$).

(3)

(i) Explain why the psychologists did not think that they had made a Type 1 error in relation to the difference in reaction times.

(2)

(j) Replication is one feature of the scientific method. The psychologists decided to replicate this experiment using a larger sample of 250 inexperienced drivers.

Explain why replication of this study would be useful.

(3)
(Total 32 marks)

28

Type A personality can be measured by using a questionnaire. Explain **two** strengths of using questionnaires.

Strength One _____

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Extra space _____

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Strength Two _____

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Extra space _____

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(Total 4 marks)

29

A psychologist was interested in the role of sensation-seeking in the development of addictive behaviour. She tested ten participants addicted to smoking (Group A) and ten participants who had no addictive behaviours (Group B). Each participant was given a questionnaire that measured sensation-seeking. Scores on the questionnaire are given in the table below:

Sensation seeking scores for those with addictive behaviours and for those with no addictions

Group A (Addicted to smoking)	Score on sensation-seeking questionnaire	Group B (No addictive behaviours)	Score on sensation-seeking questionnaire
1	65	1	16
2	32	2	25
3	25	3	27
4	29	4	24
5	28	5	59
6	30	6	26
7	18	7	33
8	30	8	21
9	35	9	18
10	28	10	23
Median		**Median**	

Complete the table by calculating the median and range for the two groups. Why did the psychologist use the median rather than the mode?

(Total 4 marks)

30

A researcher investigated obedience. The table shows the percentages of people who obeyed a simple request from a confederate who was either smartly dressed or casually dressed.

Request	Smartly dressed confederate	Casually dressed confederate
Pick up some litter	80%	61%
Post a letter lying near a post box	61%	40%
Carry a heavy box up some stairs	30%	30%

What do these results suggest about obedience?

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Extra space _____

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(Total 4 marks)

31 Social influence research helps us to understand how it is possible to change people's behaviour: for example, understanding how to persuade people to eat more healthily.

With reference to this example of social change, explain how psychology might affect the economy.

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(Total 4 marks)

32 A psychologist wanted to investigate the effects of age of adoption on aggressive behaviour. He compared children who had been adopted before the age of two with children who had been adopted after the age of two. The children were observed in their school playground when they were six years old.

(a) Suggest **two** operationalised behavioural categories the psychologist could use in his observation of aggressive behaviour. Explain how the psychologist could have carried out this observation.

Behavioural Category 1 _____

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Behavioural Category 2 _____

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Explanation of how the observation could have been carried out _____

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(4)

(b)   Explain **one** ethical issue the psychologist would have needed to consider when carrying out this research. How could the psychologist have dealt with this issue?

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Extra space _____

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(4)

The psychologist wanted to investigate how aggressive the children were when they were at home. He interviewed a sample of their parents to investigate this.

(c)   Explain why using interviews might be better than using questionnaires in this situation.

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Extra space _____

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(4)
(Total 12 marks)

33   Prison staff compared two methods of managing anger in offenders. One group of offenders took part in cognitive therapy. Another group of offenders took part in discussion therapy.

After one month following the training, levels of anger for each individual were rated by prison staff on a scale of 0 – 100. The results are given in the table below:

Ratings of anger in offenders given either systematic CBT anger management training or general advice

Cognitive Group	Anger rating	Discussion group	Anger rating
1	37	1	44
2	45	2	22
3	23	3	74
4	17	4	36
5	41	5	66
6	32	6	63
7	27	7	44
8	26	8	81
9	38	9	56
10	52	10	45
Median		**Median**	

Complete the table by calculating the median for the two groups. Show your working.
Why did the psychologist use the median as a measure of central tendency rather than the mean?

(Total 4 marks)

34 A researcher investigated whether memory for words presented with pictures was better than memory for words presented without pictures. The researcher used an independent groups design.

In **Condition 1**, participants were given a limited time to learn a list of 20 words. They were then asked to recall the 20 words in any order.

In **Condition 2**, participants were given the same time to learn the same 20 words, but this time each word was presented with a picture. For example, the word 'apple' was presented alongside a picture of an apple. They were then asked to recall the 20 words in any order.

(a)   A pilot study is a small-scale investigation carried out before the main study.

Explain why it would be appropriate for this researcher to use a pilot study. In your answer you must refer to details of the experiment given above.

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Extra space _____

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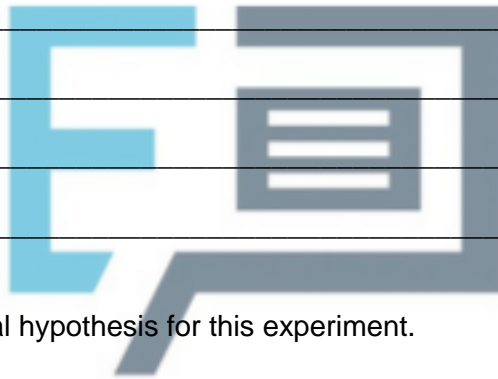
(4)

(b)   State a non-directional hypothesis for this experiment.

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(2)

(c) Explain **two** reasons why it was more appropriate to use an independent groups design than a repeated measures design.

Reason 1 _____

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Reason 2 _____

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(4)

The range and median number of words correctly recalled for participants shown words without pictures and for participants shown words with pictures

	Condition 1 Words without pictures	Condition 2 Words with pictures
Median number of words correctly recalled	13	16
Range	11	13

(d) What do the scores in the table above show?

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(2)

After he had carried out the experiment, the researcher noticed that one participant in **Condition 1** had recalled all 20 words. The researcher thought that this participant might have used a strategy for memory improvement, even though he had not been told to do so.

(Total 12 marks)

35

A psychologist was interested in the effects of violent computer games on aggression in young boys. Following appropriate ethical procedures she set up a study in which she identified ten boys who played violent computer games for at least two hours a day (Group A), and another group of ten boys who did not play violent computer games (Group B). The boys were systematically observed in their school playground on five separate occasions and the total number of aggressive behaviours they demonstrated was recorded. The data are given in the table below:

The effects of playing violent computer games on aggressive behaviour in boys

Group A	Number of aggressive acts	Group B	Number of aggressive acts
1	19	1	8
2	9	2	7
3	3	3	11
4	18	4	7
5	13	5	6
6	16	6	24
7	5	7	9
8	3	8	10
9	7	9	5
10	35	10	10
Median		**Median**	

Complete the table by calculating the median for the two groups. Why did the psychologist use the median as a measure of central tendency rather than the mean?

(Total 4 marks)

36 Distinguish between a Type I error and a Type II error.

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(Total 4 marks)

37 A researcher investigated the effectiveness of typical and atypical psychotics in schizophrenia patients with either negative or positive symptoms.

Percentages of patients with either negative or positive symptoms, responding well to typical or atypical antipsychotics.

	Number of patients responding well to atypical antipsychotics	Number of patients responding well to typical antipsychotics
Patients with negative symptoms	30	16
Patients with positive symptoms	60	60

What does the data in the table seem to show about the effectiveness of typical and atypical antipsychotics in the treatment of schizophrenia?

(Total 4 marks)

38 Read the item and then answer the questions that follow.

In a study of antisocial activity and social background, researchers interviewed 100 children aged 14 years. They then classified each child according to their level of antisocial activity. They concluded that 26 were 'very antisocial', 40 were 'mildly antisocial' and 34 were 'not antisocial'. The researchers found that the majority of the 'very antisocial' children attended Crayford secondary school, whereas most of the other two groups of children attended another local school.

(a)   The study on the opposite page is an example of socially sensitive research.

Briefly explain how the researchers could have dealt with the issue of social sensitivity in this study.

(4)

(b)   What level of measurement is being used in this study?

(1)

(c)   Explain **one** limitation of the level of measurement you have identified in your answer to (b).

(2)
(Total 7 marks)

39

Briefly explain **one** reason why it is important for research to be replicated.

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(Total 2 marks)

40

Imagine you have been asked to design a study to investigate possible gender differences in card sorting behaviours. You decide you will ask participants to sort a shuffled pack of playing cards into their suits of hearts, clubs, diamonds and spades. You decide you will time the participants as they do this using a stop watch.

Discuss the following aspects of this investigation:

- with reference to the card sorting task, explain how you would ensure that this is made the same task for all participants
- **one** methodological issue you should take into account when obtaining suitable participants for this study and explain how you would deal with this issue
- how you would ensure that the experience of your participants is ethical.

(Total 9 marks)

41

Researchers studying male and female map reading ability calculated the following statistics

	Map reading scores	
	Males	Females
Mean	15.4	5.25
Sd	2.70	2.22

(a) What do the mean and standard deviation values suggest about the male and female performances in the investigation?

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(4)

(b) In a replication of the part of the study in which map reading skills were investigated, 20 men and 20 women completed the original map reading task and the researchers obtained the following data:

Male map reading scores	17, 20, 13, 12, 13, 11, 8, 17, 12, 15, 14, 18, 20, 17, 17, 15, 13, 10, 5, 9.
Female map reading scores	12, 8, 10, 11, 4, 2, 11, 18, 17, 12, 13, 10, 3, 15, 11, 9, 10, 11, 16, 10.

The mean map reading score for both groups together was 12.23.

What percentage of the male group scored above the mean score and what percentage of the female group scored above the mean score? Show your calculations.

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(4)

(c)   Using your answers to both **question (a)** and **question (b)**, comment on the performances of the male and the female participants in this study.

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(2)
(Total 10 marks)

42

A psychologist wanted to test the effects of biological rhythms on the ability to solve maths problems. She used random sampling to form two groups each of 20 students.

She tested one group on one set of maths problems at 3 am in the morning. The other group were tested on another set of maths problems at 3 pm in the afternoon. She found that performance of the group tested at 3 pm was significantly better than the group tested at 3 am.

When submitted for peer review the paper was rejected because of serious design problems.

Explain **one** problem with the design of this study and suggest ways of dealing with this problem.

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(Total 4 marks)

43

Read the item and then answer the questions that follow.

Researchers were interested in the spatial awareness skills of motorists. They decided to investigate a possible relationship between different aspects of spatial awareness. Motorists who had between ten and twelve years of driving experience and held a clean driving licence with no penalty points were asked to complete two sets of tasks.

Set 1: To follow a series of instructions and using a map, to identify various locations correctly. This provided a map reading score for each motorist with a maximum score of 20.

Set 2: To complete a series of practical driving tasks accurately. This involved tasks such as driving between cones, driving within lines and parking inside designated spaces. Each motorist was observed completing the **Set 2** tasks by a single trained observer who rated each performance by giving the driver a rating out of 10.

The following results were obtained.

The map reading scores and driver ratings of motorists

Participant driver	Map reading score	Driver rating
1	17	9
2	8	4
3	15	7
4	12	6
5	3	2
6	4	4
7	6	8
8	14	6
9	19	10

(a)　　Should the hypothesis be directional? Explain your answer.

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(2)

(b)   Write a suitable hypothesis for this investigation.

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(3)

(c)   Identify a suitable graphical display for the data in the table and briefly explain why this
        display would be appropriate.

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(2)

(d)   Using the data in the table, comment on the relationship between the map reading scores
        and the driver rating scores of the participants.

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(3)

(e) Briefly outline **one** problem of using a single trained observer to rate the participants' driving skills in the practical task. Briefly discuss how this data collection method could be modified to improve the reliability of the data collected.

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(6)

(f) The researchers decided to analyse the data using a Spearman's rho test. Explain why this is a suitable choice of test for this investigation.

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(3)

Table of critical values for a Spearman's rho test

		Level of significance for a two-tailed test			
		0.10	0.05	0.02	0.01
		Level of significance for a two-tailed test			
		0.05	0.025	0.01	0.005
N=	8	0.643	0.738	0.833	0.881
	9	0.600	0.700	0.783	0.833
	10	0.564	0.648	0.745	0.794

Calculated r_s must EQUAL or EXCEED the critical value for significance at the level shown.

(g)   After analysis of the data the researchers obtained a calculated value of **r_s= 0.808.**

Using the information in the table above, what conclusion can the researchers draw about the relationship between the map reading and driving skills of the motorists? Explain your answer.

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(4)
(Total 23 marks)

44   Explain **one** limitation of asking parents to rate their own children.

(Total 2 marks)

45

A researcher wanted to see whether cognitive behaviour therapy was an effective treatment for depression. Twenty depressed patients who had all recently completed a course of cognitive behaviour therapy were involved in the investigation. From their employment records, the researcher kept a record of the number of absences from work each patient had in the year following their treatment. This was compared with the number of absences from work each patient had in the year prior to their treatment.

Those patients who had fewer absences from work in the year following their treatment than in the year prior to their treatment were classified as 'improved' (+). Those patients who had more absences were classified as 'deteriorated' (-). Those patients who had the same number of absences were classified as 'neither' (0).

The results of the investigation are included in **Table 1** below.

Table 1

Patient	Improved	Deteriorated	Neither
1	+		
2			0
3		–	
4	+		
5	+		
6	+		
7		–	
8		–	
9			0
10	+		
11		–	
12	+		
13	+		
14	+		
15	+		
16		–	
17	+		
18	+		
19	+		
20			0

The researcher decided to use the sign test to analyse the data.

(a)   Explain **two** factors that the researcher had to take into account when deciding to use the sign test. Refer to the investigation above in your answer.

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(4)

(b)   Calculate the sign test value of s for the data in **Table 1**. Explain how you reached your answer.

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(2)

Table 2: Critical values for the sign test

n	0.005 (one tailed) 0.01 (two tailed)	0.01 (one tailed) 0.02 (two tailed)	0.025 (one tailed) 0.05 (two tailed)	0.05 (one tailed) 0.10 (two tailed)
16	2	2	3	4
17	2	3	4	4
18	3	3	4	5

For significance, the value of the less frequent sign is equal to, or less than, the value of the table.

(c)   With reference to the critical values in **Table 2**, explain whether or not the value of s that you calculated in response to **question (b)** is significant at the 0.05 level for a two tailed test.

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(2)

(d)   The investigation above is based on secondary data.

In what ways would the use of primary data have improved this investigation?

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(3)

(e)   Outline the implications of psychological research for the economy. Refer to the
      investigation above in your answer.

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(5)
(Total 16 marks)

46

Briefly explain **one** reason why it is important for research to undergo a peer review process.

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(Total 2 marks)

47

Read the item and then answer the questions that follow.

A psychologist investigating the investment model of relationships, devised a
self-report Investment Scale for use with a group of 100 female participants. The
scale gave an investment score for each participant on a scale of 0–20, with 0
representing no investment in relationships and 20 representing extreme
investment in relationships.

The psychologist calculated measures of central tendency for the investment
scores. He found that the mean investment score was 8.6, the median
investment score was 9.5 and the mode investment score was 13.

(a)   Sketch a graph to show the most likely distribution curve for the investment scores in this
      study. Label the axes of your graph and mark on it the positions of the mean, median and
      mode

(3)

(b)   What sort of distribution does your graph show?

(1)
(Total 4 marks)

48 Explain **one** limitation of a self-report technique.

(Total 2 marks)

49 Read the item and then answer the question that follows.

> The psychologist focused on fluency in spoken communication in her study.
> Other research has investigated sex differences in non-verbal behaviours
> such as body language and gestures.

Design an observation study to investigate sex differences in non-verbal behaviour of males and females when they are giving a presentation to an audience.

In your answer you should provide details of:

- the task for the participants
- the behavioural categories to be used and how the data will be recorded
- how reliability of the data collection might be established
- ethical issues to be considered.

(Total 12 marks)

50 Read the item and then answer the questions that follow.

Researchers used a test to measure the mathematical reasoning ability of pairs of identical and non-identical twins. If both members of a pair had a similar score on the test, they were said to be 'concordant'. This type of study is known as a concordance study.

Outcome of the research with the concordance rates expressed as a percentage

Genetic relationship group	Concordance rate for mathematical reasoning ability
Identical twins (100% shared genes)	58%
Non-identical twins (50% shared genes)	14%

(a) Briefly explain the outcome of the study in relation to the nature-nurture debate.

(2)

(b) Some ways of establishing validity involve the use of a statistical test.

Outline how these researchers could have used a statistical test to establish **concurrent** validity of the mathematical reasoning ability test.

(4)
(Total 6 marks)

51

Read the text below and then answer the questions that follow.

Two researchers obtained a sample of ten people whose ages ranged from 20-years-old to 60-years-old.

Each participant was asked to take part in a discussion of social care issues. This included discussion about who should pay for social care for elderly people and how to deal with people struggling with mental health problems. A confederate of the researchers was given a script to follow in which a series of discussion points was written for the confederate to introduce.

Each participant then came into a room individually and the discussion with the confederate took place. The maximum time allowed for a discussion was 30 minutes.

The researchers observed the discussions between the confederate and participants and rated the active engagement of the participants in the discussion. The ratings were between 1, (not at all interested) and 20, (extremely interested.) The researchers believed that the rating provided a measurement of the participants' attitudes towards social care issues.

The following data were obtained in the study:

The relationship between age and attitude to social care.

Age of participant	Attitude to social care issues rating
21	5
23	3
34	8
36	12
40	10
47	13
52	17
53	15
58	18
60	20

(a)   Use the graph paper below to sketch a display of the data given in the table above. You do not need to give your display a title.
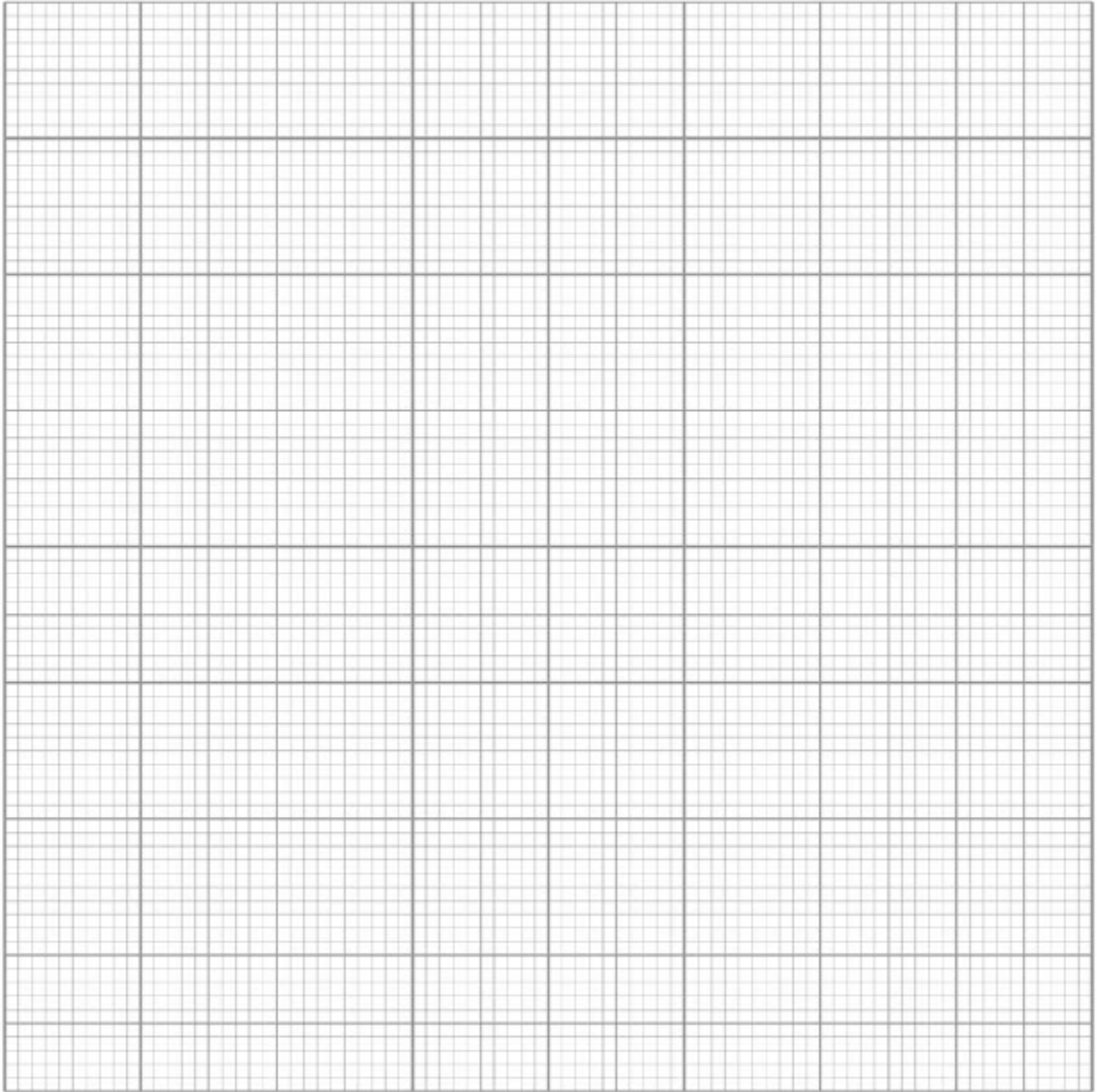
(3)

(b)   What does the display you have drawn in your answer in part (a) suggest about the relationship between age and attitude to social care issues? Explain your answer.

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(2)

(c) The researchers rated the active engagement of the participants in the discussion on social care. They used this rating as a measure of each participant's attitude to social care issues.

Briefly explain how investigator effects might have occurred in this study.

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(2)

(d) Outline how the researchers could have avoided investigator effects having an impact on the study.

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(2)

The researchers thought it might be interesting to investigate further the attitudes of the participants in the study. They decided to interview each participant. The researchers devised a questionnaire in order to collect the data they required. The questionnaire included both open and closed questions.

(e) Briefly discuss the benefits for the researchers of using **both** closed **and** open questions on their questionnaire about attitudes to social care.

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(4)

(f) Write **one** question that you think the researchers might have put on their questionnaire. Explain which type of question you have written and why you think this would be a suitable question for this study.

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(3)

The researchers have obtained both qualitative and quantitative data in the observations and interviews they have conducted.

(g) Identify the qualitative and quantitative data collected in this study. Explain your answer.

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(4)

(h) Explain how the researchers should have addressed **two** ethical issues in the investigation.

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(4)
(Total 24 marks)

52 Read the item and then answer the questions that follow.

A psychologist wanted to see if verbal fluency is affected by whether people think they are presenting information to a small group of people or to a large group of people.

The psychologist needed a stratified sample of 20 people. She obtained the sample from a company employing 60 men and 40 women.

The participants were told that they would be placed in a booth where they would read out an article about the life of a famous author to an audience. Participants were also told that the audience would not be present, but would only be able to hear them and would not be able to interact with them.

There were two conditions in the study, **Condition A** and **Condition B**.

Condition A: 10 participants were told the audience consisted of 5 listeners.

Condition B: the other 10 participants were told the audience consisted of 100 listeners.

Each participant completed the study individually. The psychologist recorded each presentation and then counted the number of verbal errors made by each participant.

(a) Identify the dependent variable in this study.

(2)

(b) Write a suitable hypothesis for this study.

(3)

(c) Identify **one** extraneous variable that the psychologist should have controlled in the study **and** explain why it should have been controlled.

(3)

(d) Explain **one** advantage of using a stratified sample of participants in this study.

(2)

(e)   Explain how the psychologist would have obtained the male participants for her stratified sample. Show your calculations.

(3)

(f)   The psychologist wanted to randomly allocate the 20 people in her stratified sample to the two conditions. She needed an equal number of males in each condition and an equal number of females in each condition. Explain how she would have done this.

(4)
(Total 17 marks)

53

Read the item and then answer the questions that follow.

A child psychologist carried out an overt observation of caregiver-infant interaction. She observed a baby boy interacting separately with each of his parents. Using a time sampling technique, she observed the baby with each parent for 10 minutes. Her findings are shown in the table below

Frequency of each behaviour displayed by the infant when interacting with his mother and when interacting with his father

	Gazing at parent	Looking away from parent	Eyes closed	Total
Mother	12	2	6	20
Father	6	10	4	20
Total	18	12	10	40

(a)   Using the data in the table, explain the procedure used for the time sampling technique in this study.

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(3)

(b) In what percentage of the total observations was the baby gazing at his mother? Show your calculations.

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(2)

(c) Which **one** of the following types of data best describes the data collected in this study? Shade **one** box only.

A   Primary data   ⬭

B   Qualitative data   ⬭

C   Secondary data   ⬭

D   Continuous data   ⬭

(1)
(Total 6 marks)

54 Read the item and then answer the questions that follow.

A psychologist wanted to see if verbal fluency is affected by whether people think they are presenting information to a small group of people or to a large group of people.

The psychologist needed a stratified sample of 20 people. She obtained the sample from a company employing 60 men and 40 women.

The participants were told that they would be placed in a booth where they would read out an article about the life of a famous author to an audience. Participants were also told that the audience would not be present, but would only be able to hear them and would not be able to interact with them.

There were two conditions in the study, **Condition A** and **Condition B**.

Condition A: 10 participants were told the audience consisted of 5 listeners.

Condition B: the other 10 participants were told the audience consisted of 100 listeners.

Each participant completed the study individually. The psychologist recorded each presentation and then counted the number of verbal errors made by each participant.

The results of the study are given in the table.

Mean number of verbal errors and standard deviations for both conditions

	Condition A (believed audience of 5 listeners)	Condition B (believed audience of 100 listeners)
Mean	11.1	17.2
Standard deviation	1.30	3.54

(a) What conclusions might the psychologist draw from the data in the table? Refer to the means **and** standard deviations in your answer.

(6)

(b) Read the item and then answer the question that follows.

> The psychologist had initially intended to use the range as a measure of dispersion in this study but found that one person in **Condition A** had made an exceptionally low number of verbal errors.

Explain how using the standard deviation rather than the range in this situation, would improve the study.

(3)

(c) Name an appropriate statistical test that could be used to analyse the number of verbal errors in the table. Explain why the test you have chosen would be a suitable test in this case.

(4)

(d) The psychologist found the results were significant at $p<0.05$. What is meant by 'the results were significant at $p<0.05$'?

(2)

(e) Briefly explain one method the psychologist could use to check the validity of the data she collected in this study.

(2)
(Total 17 marks)

55　Briefly discuss how observational research might be improved by conducting observations in a controlled environment.

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(Total 4 marks)

56　Read the item and then answer the questions that follow.

Twenty depressed patients were treated using cognitive behavioural therapy. Over the course of the six-week treatment, each patient's mood was monitored every week using a self-report mood scale (where a score of 20 = extremely positive mood and a score of 0 = extremely negative mood). Each week they also completed a quality of sleep questionnaire which was scored from 10 = excellent sleep to 0 = very poor sleep.

At the end of the study the researchers correlated each patient's final mood score with his or her final sleep score. The results are shown in the graph below.

Scattergram to show the relationship between final mood scores and final sleep scores for 20 patients at the end of therapy
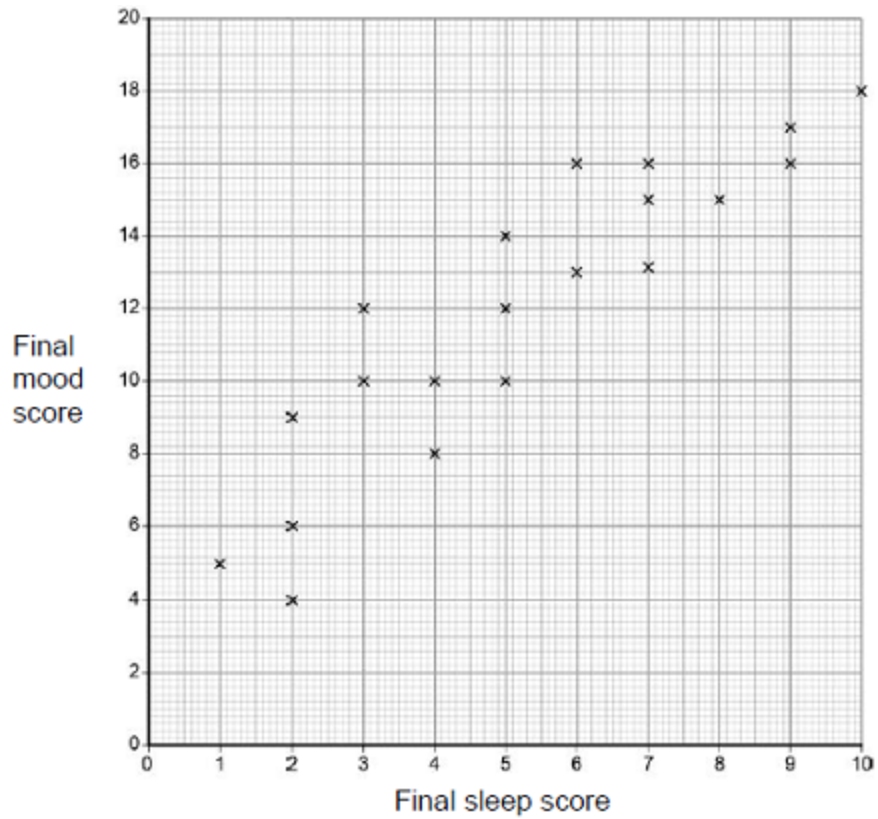
(a) Outline the type of relationship shown in the graph above and suggest why it would not be appropriate for the researchers to conclude that better sleep improves mood.

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(2)

(b) Outline **one** way in which the researchers should have dealt with ethical issues in this study.

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(2)

(c) The sleep questionnaire used by the researchers had not been checked to see whether or not it was a reliable measure of sleep quality.

Explain how this study could be modified by checking the sleep questionnaire for test-retest reliability.

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(4)
(Total 8 marks)

57 Read the item and then answer the question that follows.

A group of researchers used 'event sampling' to observe children's friendships over a period of three weeks at break times and lunchtimes during the school day.

Explain what is meant by 'event sampling'.

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(Total 2 marks)

58 Explain what is meant by 'overt observation'.

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(Total 2 marks)

Read the item and then answer the questions that follow.

An experiment was carried out to test the effects of learning similar and dissimilar information on participants' ability to remember.

In **Stage 1** of the experiment, 10 participants in **Group A**, the 'similar' condition, were given a list of 20 place names in the UK. They were given two minutes to learn the list. 10 different participants in **Group B**, the 'dissimilar' condition, were given the same list of 20 place names in the UK. They were also given two minutes to learn the list.

In **Stage 2** of the experiment, participants in **Group A** were given a different list of 20 more place names in the UK, and were given a further two minutes to learn it. Participants in **Group B** were given a list of 20 boys' names, and were given a further two minutes to learn it.

In **Stage 3** of the experiment, all participants were given five minutes to recall as many of the 20 place names in the UK, from the list in **Stage 1**, as they could. The raw data from the two groups is below.

Number of place names recalled from the list in Stage 1

Group A	Group B
5	11
6	10
4	11
7	13
8	12
4	14
5	15
4	11
6	14
7	14

(a) What is the most appropriate measure of central tendency for calculating the average of the scores, from the table, in each of the **two** groups? Justify your answer.

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(2)

(b) Calculate the measure of central tendency you have identified in your answer to **part (a)** for **Group A** and **Group B.** Show your calculations for each group.

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(4)

(c) In **Stage 3** of the experiment, several participants in **Group A**, the 'similar' condition, recalled words from the **Stage 2** list rather than the **Stage 1** list.

Use your knowledge of forgetting to explain why this may have occurred.

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(2)
(Total 8 marks)

60

A cognitive psychologist investigating how memory works gave participants the same word list to recall in one of two conditions. All the words were of equal difficulty.

Condition 1: Ten participants recalled the words in the same room in which they had learned the words.

Condition 2: Ten different participants recalled the words in a room that was not the same room as that in which they had learned the words.

The following results were obtained:

Mean values and standard deviations for Condition 1 and Condition 2 in a memory experiment.

	Condition 1	Condition 2
Mean	15.9	10.6
Standard deviation	3.78	1.04

(a)   Why are the standard deviation values found in the study above useful descriptive statistics for the cognitive psychologist?

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(2)

(b)   Outline **one** problem of studying internal mental processes like memory ability by conducting experiments such as that described in part (a) above.

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(2)
(Total 4 marks)