



CANDIDATE
NAME

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9990/23

October/November 2021

You must answer on the question paper.

You will need: Ruler

- Answer **all** questions.
- Use a black or dark blue pen. You may use an HB pencil for any diagrams or graphs.
- Write your name, centre number and candidate number in the boxes at the top of the page.
- Write your answer to each question in the space provided.
- Do **not** use an erasable pen or correction fluid.
- Do **not** write on any bar codes.

- The total mark for this paper is 60.
- The number of marks for each question or part question is shown in brackets [].

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[Turn over

Section A

Answer **all** questions in this section.

- 1 (a) Outline what is meant by 'fatigue effects'.

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..... [2]

- (b) In the study by Pepperberg (parrot learning), fatigue effects could have occurred.

State **two** examples of the parrot's behaviour that suggest fatigue effects did occur.

1

2 [2]

- 2 Explain why opportunity sampling may **not** produce a representative sample.

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..... [1]

- 3 Studies using animals should follow the ethical guideline of 'deprivation and aversive stimuli'. The study by Yamamoto et al. (chimpanzee helping) followed this ethical guideline.

Explain **one** feature of this study that ensured the chimpanzees were **not** exposed to deprivation/aversive stimuli.

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- 4 In the study by Canli et al. (brain scans and emotions), several types of quantitative data were collected, including data from fMRI (functional Magnetic Resonance Imaging).

(a) Describe **two** quantitative measures in this study, other than the data from fMRI.

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(b) For **one** of the quantitative measures you described in (a):

(i) Explain **one** reason why it may be a valid measure.

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(ii) Explain **one** reason why it may **not** be a valid measure.

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- 5 In the cognitive approach, studies often need to deceive participants.

Explain why deception was necessary in the study by Andrade (doodling).

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..... [1]

6 Describe covert observations and overt observations, using any examples.

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..... [6]

Question 7 appears on Page 6.

Section B

Answer **all** questions in this section.

- 7 Dhia is investigating when children learn to understand differences between shapes. She is comparing children aged 4 years and 8 years. Dhia will test their ability by asking them to sort wooden shapes into triangles, squares or circles.

(a) Suggest **two** ways that Dhia could measure a child's performance on this test.

1

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..... [2]

(b) Ethical guidelines suggest that even when consent has been given by a parent, a child should still be asked if they want to participate in a way that they will understand.

Suggest how Dhia could attempt to obtain informed consent from the children in a way that they will understand.

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(c) Children may express their right to withdraw in different ways from adults.

Suggest how Dhia might know that a child wants to withdraw from her experiment.

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- (d) The 4-year-old children had been learning about shapes at school the week before Dhia's study.

Explain the possible effect of this on Dhia's findings.

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- 8 Bai is conducting a correlational study about pain and hours of daylight. He thinks that people experience more pain on days when there is less sunlight. He has asked for volunteers from a specialist centre for back pain.

(a) Bai plans to collect his data about pain using a questionnaire.

Explain **one** reason why it may be better for him to use an interview to collect this data.

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(b) (i) Suggest **one** disadvantage of using participants from a specialist centre for back pain.

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(ii) Suggest **one** alternative source of participants. Justify your answer.

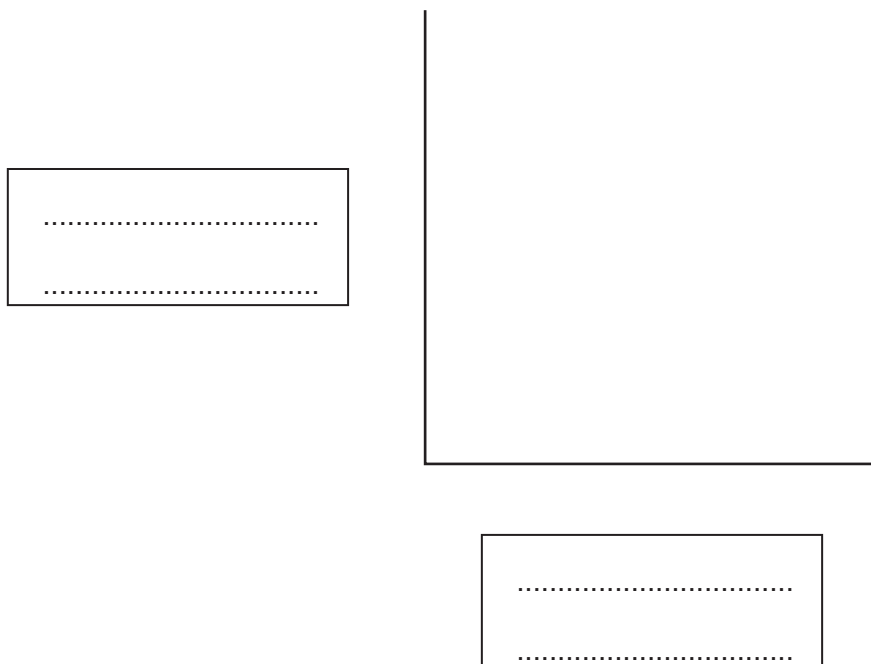
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(c) Sketch a graph of the results Bai expects to find on the axes below. You **must** label the axes.



[3]

- 9 Mitesh is investigating the effect of doodling on recall of animal noises. He provides pencils and doodling paper for all participants and tells them that they will hear a recording of animal noises that they will have to recall. Mitesh notes which participants doodle while they listen to the recording.

- (a) Suggest how Mitesh could encourage participants to doodle, other than by telling them to doodle.

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..... [2]

- (b) The participants who doodled recalled more animal noises than the participants who did not doodle. However, Mitesh cannot conclude that doodling causes better recall.

Suggest **one** reason why Mitesh **cannot** conclude that doodling causes better recall.

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- (c) Mitesh did not deceive his participants.

Explain why it was necessary for him to debrief his participants.

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(b) Identify **one** practical weakness/limitation with the procedure you have described in your answer to part **(a)** and suggest how your study might be done differently to overcome the problem.

[4]

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