Surname	Centre Number	Candidate Number
First name(s)		2

GCE A LEVEL

S24-1290U40-1

1290U40-1

MONDAY, 3 JUNE 2024 – AFTERNOON

PSYCHOLOGY – A2 unit 4
Applied Research Methods

1 hour 30 minutes

For Examiner's use only		
Question	**Maximum Mark**	**Mark Awarded**
1.	**16**	
2.	**14**	
3.	**12**	
4.	**18**	
Total	**60**	

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ADDITIONAL MATERIALS

You may require a calculator and a ruler.

INSTRUCTIONS TO CANDIDATES

Use black ink or black ball-point pen. Do not use gel pen or correction fluid.

You may use a pencil for graphs and diagrams only.

Write your name, centre number and candidate number in the spaces at the top of this page.

Answer **all** questions.

Write your answers in the spaces provided in this booklet. If further space is required for any question, you should use the additional page(s) at the back of the booklet, taking care to number the question(s) correctly.

INFORMATION FOR CANDIDATES

The number of marks is given in brackets at the end of each question or part-question.

You are reminded of the necessity for good English and orderly presentation in your answers.

Assessment will take into account the quality of written communication used in your answers.

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SECTION A – Personal Investigations

You should answer **all** the questions in this section with reference to the personal investigations carried out in your study of psychology.

INVESTIGATION ONE:

An experiment on a context dependent memory task.

1. (a) (i) Identify the experimental design used in your experiment. [1]

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(ii) Justify why the experimental design identified in (a)(i) was appropriate in your experiment. [2]

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(b) State the null hypothesis of your experiment. [2]

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(c) (i) Identify the location of research used in your experiment. [1]

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(ii) Justify why the location of research identified in (c)(i) was appropriate for your experiment. [2]

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(d) Evaluate the descriptive statistics used to analyse the data in your experiment. [4]

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(e) Explain **one** issue of validity you considered for your experiment and **one** way you dealt with it. [4]

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INVESTIGATION TWO:

A non-participant observation of mobile phone use.

2. (a) With reference to the observational sampling technique used, explain how you collected data for your non-participant observation. [4]

(b) Explain how you could assess the reliability of your non-participant observation. [2]

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(c) State **two** findings from the descriptive statistics used in your non-participant observation. [2]

(d) Discuss why **two** changes to your non-participant observation would improve the investigation. [3+3]

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SECTION B – Application of research methods to novel scenarios

Answer **all** questions.

3. A positive psychologist conducted a longitudinal study to investigate the effects that social media has upon mental wellbeing. Using a volunteer sample of 10 male and 10 female participants, she assessed their frequency of use of social media and their happiness at the age of 15 years, then at 21 years and then again at 26 years. To assess happiness, the psychologist used a 5-point Likert scale, ranging from 1 – 5, where 1 is very unhappy and 5 is very happy. The psychologist calculated the descriptive statistics using measures of central tendency. The results are shown in **Figure 1** below.

Figure 1. Mean, Median and Modal happiness scores at ages 15, 21 and 26 years.

Age	Mean happiness score	Median happiness score	Mode happiness score
15 years	3.5	3	2
21 years	3	3	3
26 years	4.5	4	5

(a) Define 'ordinal' data. [2]

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(b) Explain how the psychologist could have gained her sample using self-selected sampling. [2]

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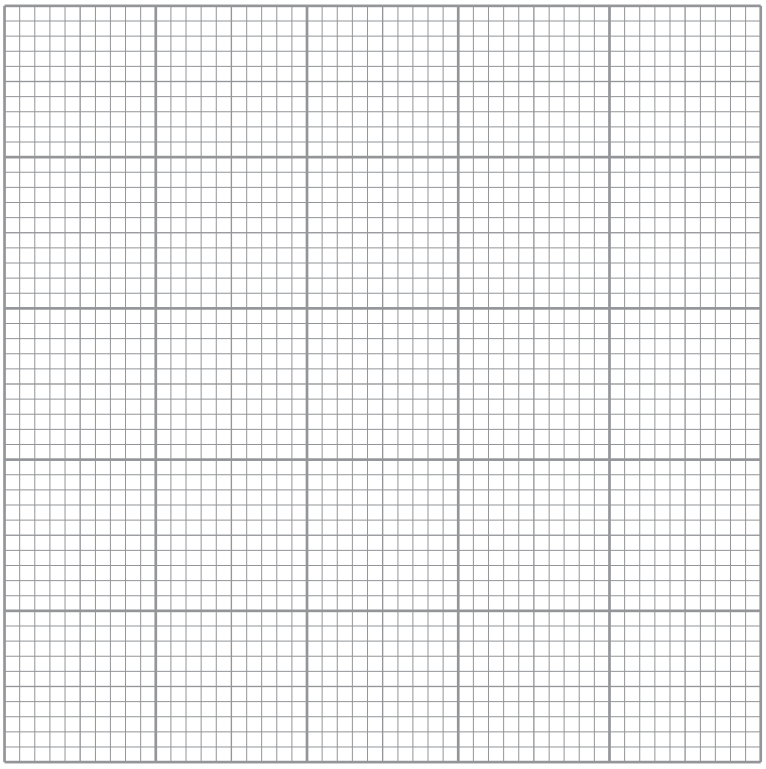
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(c) (i) Sketch a distribution curve for the scores attained by the participants at age 21 years. [1]



(ii) Identify the type of distribution curve you sketched in **3**(c)(i). [1]

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(iii) Explain why the distribution curve you drew in (c)(i) represents the data for the participants at age 21. [2]

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(d) Evaluate **one** strength and **one** weakness of longitudinal research. [2+2]

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4. A researcher conducted a correlational study to investigate the relationship between sleep and exercise. He used an opportunity sample of friends and family. He asked the participants to estimate how much sleep they got per night and to estimate how many hours per week they spent exercising. The data was plotted on a scatter diagram.

(a) Justify the choice of a scatter diagram to graphically represent the data in this research. [2]

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(b) Apart from it being a correlational study, fully explain **one** other reason why a Spearman's rank order correlation coefficient is appropriate in this research. [2]

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(c) Explain **one** ethical issue in this research and **one** way of dealing with this issue. [2+2]

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The researcher wanted to further investigate the effect that exercise has upon sleep by conducting an experiment. His experimental hypothesis was 'the number of hours sleep per night will increase after exercising for one hour per day'. The researcher used a self-selected sample of 10 participants. During the first week, the participants did not exercise. During the second week, the participants exercised for an hour each day. In both weeks, the participants were required to wear a sleep monitoring device each night so that their length of sleep could be recorded.

(d) Discuss **one** reason the researcher may have wanted to study sleep and exercise using an experiment. [2]

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(e) The sleep monitoring devices showed that all 10 participants slept more during the second week. The researcher analysed the data using a Wilcoxon matched pairs signed ranks test, using a 0.05 probability value. The observed (calculated) value of T was 10.

With reference to an appropriate critical value from **Figure 2**, explain which hypothesis the researcher should accept and which hypothesis the researcher should reject. [4]

Figure 2. Critical values for a Wilcoxon T test

N	One-tailed (Directional)	
	0.05	0.025
	Two-tailed (Non-directional)	
	0.10	0.05
8	6	4
9	8	6
10	11	8
11	14	11

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(f) Evaluate **two** weaknesses of using experiments in research. [2+2]

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END OF PAPER

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