**TRANBY COLLEGE**

**Psychology**

**Year 11 ATAR**

**Test 1 | Research Methods Test**

**Question/Answer Booklet**

Student Name :

Group: ☐Friday p3/4 ☐ Friday p5/6

*Please tick your group.*

## TIME ALLOWED FOR THIS PAPER

Working time for paper: 30 minutes

## MATERIAL REQUIRED/RECOMMENDED FOR THIS PAPER

***TO BE PROVIDED BY THE SUPERVISOR***

This Question/Answer Booklet

***TO BE PROVIDED BY THE CANDIDATE***

*Standard Items:* Pens, pencils, eraser and ruler.

*Special Items:* Calculators satisfying the conditions set by the Schools Curriculum and Standards Authority (SCSA)–*no graphics calculators permitted.*

## *INSTRUCTIONS TO CANDIDATES*

**No other items may be taken into the assessment.**

**It is your responsibility to ensure that you do not have any unauthorised notes or other items of a non-personal nature in the examination room. If you have any unauthorised material with you hand it to the supervisor BEFORE reading any further.**

**Structure of this paper**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Number of questions available** | **Number of questions to be answered** | **Suggested working time**  **(minutes)** | **Number of Marks Available** | **Student Score** |
| 3 | 3 | 30 | 20 |  |

**Instructions to candidates**

1. The rules for the conduct of this and the Western Australian external examinations are detailed in the *Year 12 Information Handbook 2014* and *Tranby College’s Assessment Policy.* Sitting this test implies that you agree to abide by these rules.
2. This test has three (3) questions. Answer all questions. Write your answers in the spaces provided.

3. You must be careful to confine your responses to the specific questions asked and to follow any instructions that are specific to a particular question.

4. Spare pages are included at the end of this booklet. They can be used for planning your responses and/or as additional space if required to continue an answer.

* + Planning: If you use the spare pages for planning, indicate this clearly at the top of the page.
  + Continuing an answer: If you need to use the space to continue an answer, indicate in the original answer space where the answer is continued, i.e. give the page number. Fill in the number of the question(s) that you are continuing to answer at the top of the page.

**Question 1 (9 marks)**

Researchers wanted to determine the effect of drinking caffeine on students’ heart rates. The researchers collected 100 Year 12 student volunteers. Fifty students were randomly assigned to Group One and fifty were assigned to Group Two.

The following sequence of tasks was undertaken by each of the participants.

* Sit calmly in a quiet room for five minutes
* Drink one cup of hot coffee (for Group One, no caffeine; for Group Two, caffeine).
* Have researcher measure heart rate.
* Return and repeat the procedure on two more consecutive days.

At the conclusion of the study, the following statistics were calculated.

Group One – no caffeine. Mean heart rate = 70 beats per minute.

Group Two – caffeine. Mean heart rate = 85 beats per minute.

1. State the hypothesis the researchers would be testing in this study. (1 mark)

***Drinking caffeine increases heart rate. [Directional]***

***Drinking caffeine affects heart rate [non-directional] (1)***

* + 1. Identify the independent variable. (1 mark)

***Caffeine (1)***

* + 1. Identify the dependent variable. (1 mark)

***Heart Rate (1)***

1. In the above experiment, explain why the experiment is:
   * 1. Reliable (1 mark)

***Has been tested on 100 individuals (1)***

***Repeated trials (1)***

* + 1. Valid (1 mark)

***Has control and experimental groups (1)***

***Descriptive method (1)***

***Random sampling (1)***

1. Identify one source of error in the design of this experiment and suggest a way of reducing this error. (2 marks)

***Any source of error (1) and correct improvement (1)***

* ***Observer bias – not tell the observer the aim of the experiment***
* ***Expectation bias – not tell the participant the aim or what they are drinking of the experiment–single blind or double blind***
* ***Experimenter effects – not tell the experimenter who is getting what drink–double blind***
* ***Placebo effect - not tell the participant the aim or what they are drinking of the experiment–single blind or double blind***

1. Identify:
   * 1. One controllable variable (1 mark)

***Drink one cup of drink (1)***

***Age–all Year 12s (1)***

***Beverages were all hot***

***Any other good point (1)***

* + 1. One uncontrollable variable (1 mark)

***What they drank before (1)***

***Sensitivity to caffeine (1)***

***Other factors that affect heart rate (1)***

***Any other good point (1)***

**Question 2 (4 marks)**

A sample of secondary school students completed a quantitative self-report measure to determine their attitudes toward wearing school uniforms. The age of participants and the mean of the group, indicating their level of support for wearing a school uniform, are shown in the table below. (Higher scores indicate a stronger level of support.)

Table 1.

*The Age and Score of Attitudes of Participants’ Support for Wearing a School Uniform*

|  |  |
| --- | --- |
| Age | Score |
| 14 | 8 |
| 15 | 12 |
| 16 | 18 |
| 17 | 20 |

1. State one (1) conclusion that could be drawn from this study. (1 mark)

***Older students support the wearing of uniforms (1)***

***Younger students support the wearing of uniforms less than older students (1), etc.***

1. Describe, using an example, the difference between ‘population’ and ‘sample’ when conducting research. (2 marks)

***No Example – maximum of (1) mark***

***The population is all secondary students (1)***

***The sample is a subset of the population selected (the four students) to represent the population (1)***

***Other good point (1 x 2)***

1. Calculate the ***mean score*** for these four participants. (1 mark)

***14.5 (1)***

**Question 3 (7 marks)**

A study was conducted with a group of Psychology students to determine the relationship between the number of hours spent studying Psychology per week and the final examination score. The results of this study are shown in the table below.

Table 2.

*The Amount of Hours Studies for the Final Psychology Examination and the Respective Scores*

|  |  |  |
| --- | --- | --- |
| Student | Amount of study per week (hours) | Final examination score (%) |
| 1 | 13 | 30 |
| 2 | 20 | 70 |
| 3 | 4 | 36 |
| 4 | 10 | 65 |
| 5 | 13 | 79 |

1. State the ***median*** examination score from this group. (1 marks)

***65 (1)***

1. Plot a scattergram of these scores on the axes provided. Label the scattergram appropriately. (4 marks)

*Figure 1.*

The Amount of Time Spent Studying and Scores Achieved by the Students

***Marking Key***

***(1) Clear title that describes data***

***(1) Axes are labeled***

***(1) Scale on axes is appropriate***

***(1) Data is correctly plotted.***

1. It was hypothesised that there is a relationship between the number of hours spent studying each week and examination scores achieved. With the use of the data, explain if the results given support or disprove this hypothesis?   
   (2 marks)

***The hypothesis is supported (1)***

***Generally, the more you studied, the higher the score you received (1)***

***There is a positive correlation (1)***

***There is a positive gradient and most scores are bunched together (1)***

***Accept is ‘not supported’ or ‘disproven’ only if justified with evidence.***

**End of Test**