**Dataset 1**

1 – Apply understanding

Q1. **Determine** the rating of screen usage for participants in condition 3.

A. Accept 2.6 - 2.7.

Q2. **Determine** the condition number of the group with a screen usage rating of 2.4.

A. Condition 2.

Q3. **Identify** the independent variable (IV) on figure 1.

A. Ratings of feeling unrested in the morning.

Q4. **Identify** the dependent variable (DV) on figure 1.

A. Ratings of screen usage in bed.

Q5. **Determine** the number of levels for the independent variable (IV).

A. 4.

Q6. **Identify** the dotted red line on figure 1.

A. Regression line.

Q7. **Identify** the purpose of a regression line.

A. A regression line describes how a response variable *y* changes as an explanatory variable *x* changes. OWTTE.

2 – Analyse evidence

Q1. What is the **relationship** between feeling unrested in the morning and screen time at night?

A. The relationship is linear and positive.

Q2. **Identify** the strength of the relationship based on Pearson’s Correlation coefficient.

A. The *r* value is greater than .5 which is a large effect and therefore considered a strong relationship. OWTTE.

Q3. **Identify** whether or not the results are statistically significant. Explain why or why not.

A. The results are statistically significant. Results are accepted as significant when the P value is .05 or less. The P value for this study is less than .0001 thus making it significant. OWTTE.

3 – Interpret evidence

Q1. **Infer** the results of Pearson’s correlation coefficient analysis.

A. The *r* value indicates there is a positive correlation between feeling unrested in the morning and screen time in bed at night and the *p* value indicates it is statistically significant.

Q2. **Compare** the ratings of participants in condition1 with participants in condition 4.

A. On average, participants in condition 1 rarely use computers, Ipads, or mobile phones after they have gone to bed whereas participants in condition 4 use them from some to most of the time. OWTTE.

Q3. **Draw a conclusion** about the relationship between feeling unrested in the morning and screen usage in bed at night.

A. As screen usage in bed at night increases, so does feeling unrested in the morning. OWTTE.

Q4. Based on the known information, **extrapolate** the probable results if a condition 5 (very large problems in not feeling rested) was included.

1. The results of condition 5 would most likely show a further increase in not feeling rested in the morning. OWTTE.

**Dataset 2**

1 – Apply understanding

Q1. **Determine** the rating of feeling unrested for participants in condition 2.

A. 2.7

Q2. **Determine** the condition number of the group with a fast food consumption rating of 2.5.

A. Condition 4.

Q3. **Identify** the independent variable (IV) on figure 2.

A. Frequency of fast food consumption.

Q4. **Identify** the dependent variable (DV) on figure 2.

A. Rating of feeling unrested.

Q5. **Determine** the number of levels for the independent variable (IV).

A. 4.

2 – Analyse evidence

Q1. What is the **relationship** between the frequency of fast food consumption and feeling unrested in the morning?

A. The relationship is linear and negative.

Q2. **Identify** the strength of the relationship based on Pearson’s Correlation coefficient.

A. The *r* value is greater than -.5 which is a large effect and therefore considered a strong relationship. OWTTE.

Q3. **Identify** whether or not the results are statistically significant. Explain why or why not.

A. The results are statistically significant. Results are accepted as significant when the P value is .05 or less. The P value for this study is less than .0001 thus making it significant. OWTTE.

Q4. **Identify** the error in Table 2. (If this question is used, Pearson’s correlation coefficient must be changed from a negative to a positive number)

A. Pearson’s correlation coefficient should be -.97 not .97 as the relationship of the data in Figure 2 is negative.

3 – Interpret evidence

Q1. **Infer** the results of Pearson’s correlation coefficient analysis. (If Q4 from previous batch is used, then this question will be: **Infer** the results of the corrected Pearson’s correlation coefficient analysis.)

A. The *r* value indicates there is a negative correlation between feeling unrested in the morning and the frequency of fast food consumption and the *p* value indicates it is statistically significant.

Q2. **Compare** the ratings of participants in condition1 with participants in condition 4.

A. Although participants in condition 1 have a higher rating of feeling unrested than participants in condition 4, there is very little real difference as both conditions fall between 2 (a bit) and 3 (some). OWTTE.

Q3. **Draw a conclusion** about the relationship between the frequency of fast food consumption and feeling unrested in the morning.

A. As the frequency of fast food consumption increases, feeling unrested in the morning decreases. OWTTE.

**Dataset 3**

1 – Apply understanding

Q1. **Distinguish** between correlational and experimental designs.

A. Correlational designs look for relationships between factors but cannot determine cause and effect whereas experimental designs manipulate an independent variable in order to observe the effect on a dependent variable. OWTTE

Q2. **Calculate** the median score for Hours Slept. Show your working.

A. Med = 5, 5, 6, 6, 6, 6, 6, 6, 7, 7, 7, 7, 7, 7, 7, 7, 8, 8, 9, 9.

 Med = $\frac{7+7}{2}$

 Med = 7

Q3. **Determine** what type of variable Hours Slept is.

A. Continuous variable.

2 – Analyse evidence

Q1. Identify the **limitation** of correlational designs.

A. Correlational designs cannot determine causation. OWTTE

Q2. What is the **relationship** between the number of hours of sleep and not feeling rested in the morning?

A. The relationship is negative.

Q3. **Identify** the strength of the relationship based on Pearson’s Correlation coefficient.

A. The *r* value is greater than .5 which is a large effect and therefore considered a strong relationship. OWTTE.

3 – Interpret evidence

Q1. **Deduce** the strength of the correlation between the number of hours of sleep and not feeling rested in the morning.

A. The *r* value is -.54 indicating there is a strong negative correlation between the number of hours of sleep and not feeling rested in the morning. OWTTE

Q2. **Draw a conclusion** about the relationship between the number of hours of sleep and not feeling rested in the morning.

A. As the number of hours of sleep increases, not feeling rested in the morning decreases. OWTTE

Q3. **Draw a conclusion** about the significance of the results. **Justify** your answer.

A. The results are statistically significant. Results are accepted as significant when the P value is .05 or less. The P value for this study is .015 thus making it significant. OWTTE.

Q4. **Draw a conclusion** whether or not an increase in hours of sleep causes a decrease in not feeling rested in the morning.

A. We cannot determine whether or not increased hours of sleep causes not feeling rested in the morning to decrease as correlational designs cannot be used to determine causation. OWTTE