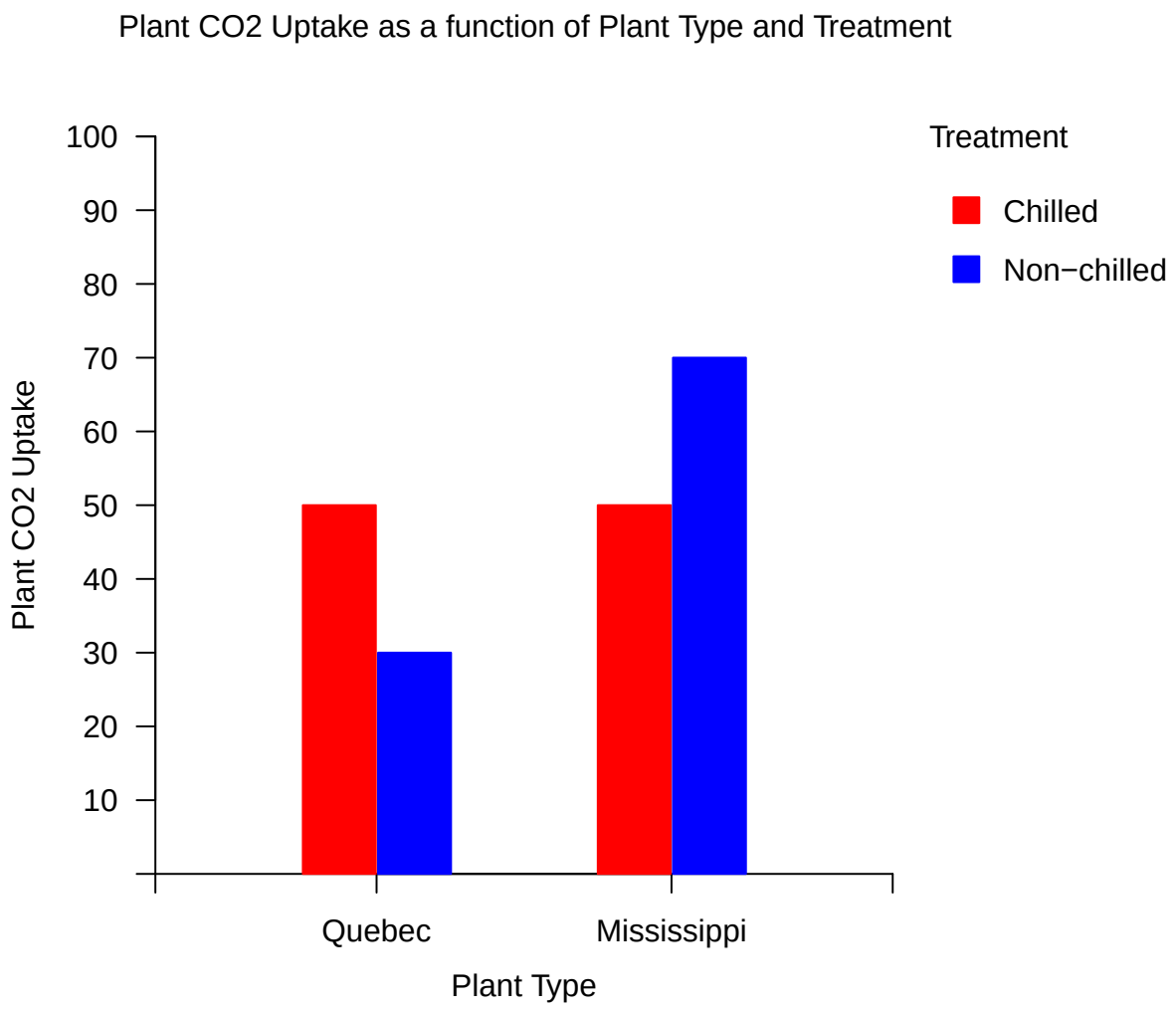
Name: Student number:

Age: Sex: M / F (circle as appropriate)

Course:

Introduction

This questionnaire is intended to assess your ability to interpret a type of graph commonly used in undergraduate psychology courses. Below you will see one of these graphs. Your task is to study it and try to understand it as best you can. When you feel ready to proceed, then try to answer the sixteen questions about the graph. **Please try to answer every question as completely and as accurately as you can**.



1. Insert variable names into the spaces below to produce statements that accurately describe the causal relationships between the three variables in the graph. You may not need to complete all of the statements below to describe all of the correct causal relationships in the graph.

a. _____ is affected by _____.

b. _____ is affected by _____.

c. _____ is affected by _____.

d. _____ is affected by _____.

e. _____ is affected by _____.

f. _____ is affected by _____.

2. Write down the dependent variable(s).

3. Write down the independent variable(s).

4. Look at the pattern in the centre of the graph and place letters to indicate which parts of the pattern represent the following (e.g., write the letter 'a' on the part of the graph you think represents chilled Quebec plants)

a. Chilled Quebec plants.

b. Non-chilled Mississippi plants.

c. The average value of plant CO_2 uptake for Mississippi plants.

d. The average value of plant CO_2 uptake for non-chilled plants.

5. Looking at the graph, what would you use if you wanted to obtain the largest amount of plant CO_2 uptake?

6. Overall, which plant type results in the highest CO_2 uptake?

7. Consider the Quebec plants. Write down one or more statements that compare them to the Mississippi plants in terms of their CO_2 uptake.

8. Write a statement that accurately compares chilled Quebec and Mississippi plants in terms of their CO_2 uptake.

9. What do the data suggest you should use if you want to obtain the smallest amount of plant CO_2 uptake?

10. Write a statement that accurately compares chilled and non-chilled Quebec plants in terms of their CO_2 uptake.

11. Write one or more statements that accurately describe the effect that chilling the plants has on CO_2 uptake compared to not chilling them.

12. Overall, which treatment results in the lowest plant CO_2 uptake?

13. Looking at the graph, do you think that it shows a "main effect" of one or more of the variables? If so, write the variable name(s) in the slots provided below. You may not need to complete any or all of the statements below. Circle response d if you don't know what a "main effect" is.

a. There is a main effect of the _____ variable.

b. There is a main effect of the _____ variable.

c. There is a main effect of the _____ variable.

d. I don't know what a "main effect" is.

14. Looking at the graph, do you think that it shows an "interaction" between any of the variables? If so, write the variable name(s) in the slots provided below. You may not need to complete any or all of the statements below. Circle response d if you don't know what an "interaction" is.

a. There is an interaction between _____ and _____.

b. There is an interaction between _____ and _____.

c. There is an interaction between _____ and _____.

d. I don't know what an "interaction" is.

15. One of these statements is unambiguously true. Circle the letter identifying the statement:

a. Plant CO_2 uptake increases if plants are not chilled.

b. Plant CO_2 uptake increases if Mississippi plants are used.

c. Plant CO_2 uptake decreases if plants are not chilled.

d. Plant CO_2 uptake remains the same if plants are chilled.

e. I don't know which of a, b, c or d to select..

16. Imagine you had to describe what the graph was about and summarise what its message was to a friend. Write down one or more statements that encapsulate the meaning of the graph.