Experimental Design Rubric for B/C

a. Statement of problem (2 Points)
   _____ Not a yes/no question and includes independent
   and dependent variables
   _____ Problem is clearly testable and is written
   in a clear and concise manner

b. Hypothesis (4 points)
   _____ Statement predicts a relationship or trend
   _____ Statement gives specific direction to the
   predictions(s): A stand is taken.
   _____ Prediction includes both independent and
   dependent variables
   _____ A rationale is given for the hypothesis.

c. Variables
   Independent Variable (IV) (3 Points)
   _____ IV correctly identified
   _____ IV operationally defined
   _____ At least three levels of IV given
   Dependent Variable (DV) (3 points)
   _____ (2pts) DV correctly identified
   _____ DV operationally defined

   Controlled Variables (CV) (4 points)
   _____ One CV correctly identified
   _____ Two CVs correctly identified
   _____ Three CVs correctly identified
   _____ Four CVs correctly identified

d. Experimental Control (Standard of Comparison-SOC)
   (2 points)
   _____ SOC correctly identified and makes logical
   sense for the experiment
   _____ Reason given for selection of SOC

e. Materials (3 points)
   _____ All materials used are listed
   _____ All materials used are listed properly
   (no extras)
   _____ Materials listed separately from procedure

f. Procedure: Including Diagrams (6 points)
   _____ Procedure well organized
   _____ Procedure is in a logical sequence
   _____ (2pts) Enough information is given so
   another could repeat procedure
   _____ Diagrams used
   _____ Repeated trials

g. Qualitative Observations (4 points)
   _____ Observations about results given
   _____ Observations about procedure/deviations
   _____ Observations about results not directly
   relating to DV
   _____ Observations given throughout the course
   of the experiment.

h. Quantitative Data - Data Table (6 points)
   _____ All raw data is given
   _____ All data has units
   _____ Condensed table with most
   important data included
   _____ Table(s) labeled properly
   _____ Example calculations are given
   _____ All data reported using correct figures
(significant figures C Division only)
i. Graph(s) (6 points)
  _____ Appropriate type of graph used
  _____ Graph has title
  _____ (2pts) Graph labeled properly (axes/series)
  _____ Units included
  _____ Appropriate scale used
j. Statistics Division B&C-- (2 points)
  _____ Average (mean), median, mode, range, or drawn in line best of-fit
Division C only (4 more points)
  _____ Measure of central tendency
  _____ Measure of variation
  _____ Regression analysis
  _____ Other appropriate statistic used
k. Analysis and interpretation of data (4 points)
  _____ All data discussed and interpreted
  _____ Unusual data points commented on
  _____ Trends in data explained and interpreted
  _____ Enough detail is given to understand data and all statements must be supported by the data.
l. Possible Experimental Errors (3 points)
  _____ Possible reasons for errors are given
  _____ Important info about data collection given
  _____ Effect errors had on data discussed
m. Conclusion (4 points)
  _____ Hypothesis is evaluated according to data
  _____ Hypothesis is re-stated
  _____ Reasons to accept/reject hypothesis given
  _____ All statements are supported by the data
n. Applications and Recommendations for Further Use (4 points)
  _____ Suggestions for improvement of specific experiment are given
  _____ Suggestion for other ways to look at hypothesis given
  _____ Suggestions for future experiments given
  _____ Practical application(s) of experiment given