Criteria for Judging

I. Creative Ability (30 points)
   a. Does the project show creativity and originality in: The question asked? The approach to solving the problem? The analysis of the data? The interpretation of the data? The use of equipment? The construction or design of new equipment?
   b. Collections cannot be considered to be creative unless they are used to support an investigation and help to answer a question in some original way.
   c. In engineering, distinguish between gadgeteering and a genuine contribution.

II. Scientific Thought (30 points)
   a. Is the problem stated clearly and unambiguously?
   b. Is the problem sufficiently limited so that it was possible to attack it?
   c. Was there a procedural plan for obtaining a solution?
   d. Are the variables clearly recognized and defined?
   e. Are there adequate data to support the conclusions?
   f. Are the limitations of the data recognized?
   g. Does the student understand how her/his project ties in with related research?
   h. Does the student have an idea of what further research is indicated?
   i. Did the student cite scientific literature – not popular literature?
   j. Remember that the student may have received assistance, that it is important to estimate the extent of this assistance, and what contribution it made to the project.

   -OR-

   Engineering Goals (30 points)
   a. Does the project have a clear objective?
   b. Does this objective have relevance to the needs of the potential user?
   c. Is the solution: Workable and economically feasible?
   d. Can the solution be used in the design or construction of some end product?
   e. Does the solution represent an improvement over previous alternatives?
   f. Has the solution been tested to see if it works?

III. Thoroughness (15 points)
   a. Does the project carry out its purpose to completion within the objective?
   b. Are the conclusions based on a single experiment or on replication?
   c. How complete are the notes and bibliography?
   d. Is the student aware of other approaches or theories concerning her/his project?
   e. How much time was spent on the project?
   f. Is the student familiar with the scientific literature in the field in which she/he was working? Note: Citations are not considered to be an important consideration in engineering (as opposed to science) and so a student should not be penalized for a lack of citations.

IV. Skill (15 points)
   a. Does the student have the skills required to do all the work necessary to obtain the data, which support her/his project? Laboratory skills? Computation skills? Observation skills? Design skills?
   b. Was the project carried out under the supervision of an adult, or did the student work largely on her/his own?
   c. Where did the equipment come from? Did the student build it herself/himself?

V. Clarity (10 points)
   a. How clearly is the student able to discuss the project? Is she/he able to explain its purpose, procedure, and conclusions in a clear concise manner?
   b. Has the student expressed herself/himself well in written materials? Is the written material her/his own?
   c. Are the important phases of the project presented in an orderly manner?
   d. How clearly are the data results presented?
   e. How well does the project explain itself?