2022 RCSEF JUDGING CRITERIA, PART 1

Science Project Judging Criteria	Engineering Project Judging Criteria	Robotics/Mathematics/ Computer Project Judging Criteria
RESEARCH QUESTION/PROBLEM – 10 POINTS		
Research Question • Clear and focused purposed. • Identifies contribution to the field of study. • Testable using scientific methods.	**Research Question** • Description of a practical need or problem to be solved. • Definition of criteria for proposed solution. • Explanation of constraints.	**Research Problem** • The project had a clear objective.
DESIGN AND METHODOLOGY – 15 POINTS		
Design and Methodology • Well-designed and data collection methods. • Variables and controls defined, appropriate and complete.	**Design and Methodology** • Exploration of alternatives to answer need or problem. • Identification of a solution. • Development of a prototype/model solution.	**Design and Methodology** • Design and Methodology. • The project had a clear objective. • The project was an improvement over current computer science inquiry. • For projects in theoretical computer science – the project involved creating/writing a new mathematical algorithm to solve a problem in programming. • For projects in applied computer science - the student/team created a simulation or a model, using computer science to explain, demonstrate, or make understandable existing scientific understanding. • For projects in theoretical mathematics - the student/team understood the project's potential applications. • For projects in applied mathematics - the student/team understood the underlying mathematical theory.
EXECUTION – 15 POINTS		
Execution: Data Collection, Analysis and Interpretation • Systematic data collection and analysis. • Reproducibility of results. • Appropriate application of mathematics and statistical methods. • Sufficient data collected to support interpretation and conclusions/claim. • Appropriate control of variables. • Scientific/Engineering Journal to support the research.	**Execution: Construction and Testing** • Prototype demonstrates intended design. • Prototype has been tested in multiple conditions/trials. • Prototype demonstrates engineering skill and completeness. • Scientific/Engineering Journal to support the research.	**Execution: Construction and Testing** • Was the software or hardware prototype to be invented/engineered relevant, workable and feasible. • Explanation of method of debugging program. • The mathematical approach (proofs, graphs, formulas, etc.) was clearly explained.

2022 RCSEF JUDGING CRITERIA, PART 2

Science Project Judging Criteria	Engineering Project Judging Criteria	Robotics/Mathematics/ Computer Project Judging Criteria
CREATIVITY – 20 POINTS		
Creativity • Project demonstrates significant creativity in one or more of the above criteria.	**Creativity** • Project demonstrates significant creativity in one or more of the above criteria.	**Creativity** • The student/team showed creativity in choosing the problem and/or the methodology used.
DISPLAY BOARD – 10 POINTS		
Display Board • Logical organization of material. • Clarity of graphics and legends. • Supporting documentation displayed.	**Display Board** • Logical organization of material. • Clarity of graphics and legends. • Supporting documentation displayed.	**Display Board** • Logical organization of material. • Clarity of graphics and legends. • Supporting documentation displayed.
INTERVIEW – 20 POINTS		
Interview • Clear, concise thoughtful response to questions. • Understanding of basic science relevant to the project. • Understanding, interpretation and limitations of project outcomes and consequences. • Degree of independence in conducting project. • Recognition of potential impact in science, society, and/or economics. • Quality of ideas for future research. • For team projects, contributions to and understanding of project by all members.	**Interview** • Clear, concise thoughtful response to questions. • Understanding of basic relevant to the project. • Understanding, interpretation and limitations of project outcomes and consequences. • Degree of independence in conducting project. • Recognition of potential impact in science, society, and/or economics. • Quality of ideas for future research. • For team projects, contributions to and understanding of project by all members.	**Interview** • Clear, concise thoughtful response to questions. • Understanding of basic science relevant to the project. • Understanding, interpretation and limitations of project outcomes and consequences. • Degree of independence in conducting project. • Recognition of potential impact in science, society, and/or economics. • Quality of ideas for future research. • For team projects, contributions to and understanding of project by all members.
RESEARCH NOTEBOOK – 10 POINTS		
Research Notebook • Dated Entries Discussing Project Events • Table of Contents • Research Notes • Procedures • Descriptive Observations and Sketches • Data, Calculations and Graphs • Conclusions/Claims	**Research Notebook** • Dated Entries Discussing Project Events • Table of Contents • Research Notes • Prototype/Design Blueprints • Descriptive Observations and Sketches • Data, Calculations and Graphs • Conclusions/Claims	**Research Notebook** • Dated Entries Discussing Project Events • Table of Contents • Research Notes • Prototype/Design/Coding Blueprints • Descriptive Observations and Sketches • Data, Formulas, Proofs, Algorithms and Graphs • Conclusions/Claims