Physics Problem Solving Rubric

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| **Criteria & Rating** | **5** | **4** | **3** | **2** | **1** |
| **Strategic Approach (S)** | **Approach chosen is clearly shown, clearly written & all elements are valid.** | **Valid approach with minor errors that do not disrupt understanding.** | **Valid approach with multiple errors that impede understanding.** | **Invalid approach that demonstrates little understanding of the problem.** | **Little or no understanding of how to approach the problem.** |
| **Physics Concepts (P)** | **Appropriate concepts that are fully understood (symmetries, conserved quantities, etc.), clearly stated & employed correctly.** | **Appropriate concepts that are mostly understood but employed with errors.** | **Appropriate concepts identified, but not employed or understood.** | **At least one concept identified but unable to demonstrate understanding.** | **Little or no understanding of physics concepts.** |
| **Mathematical Concepts (M)** | **Correct starting equations; all mathematical steps are clearly shown and they flow easily toward the correct answer.** | **Correct starting equations. All mathematical steps are clearly shown but minor errors yield wrong answer.**  **OR**  **Correct starting equations with correct final result but the mathematical steps are hard to follow.** | **Correct starting equations. The mathematical steps are hard to follow and errors begin to impede application.** | **Can identify at least one equation, but unable to apply it/them.** | **Incorrect equations; demonstrates little or no understanding of mathematical concepts involved.** |
| **Answer (A)** | **100% correct answer – analytically (IA) numerically (IA) & conceptually (IA).** | **Correct answer analytically (IA), but not numerically (IA).** | **Incorrect answer, but on the right path.** | **Unable to reach a correct answer on this path.** | **No answer.** |

**KEY: IA= If applicable; score of zero = incomplete assignment (NSW = no shown work or MS = missing assignment).**

**Additional Notes:**