Hydrocar Lab Report Rubric

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| **Abstract (10 pts)** | | | | Weight |
| Clearly states what you did, why you did it, how you did it and what you found. Succinct 50-200 words | All items complete and accurate.  Succinct | Most items complete and accurate.  A tad wordy or a tad too short | Items missing or inaccurate  Not at all succinct or extremely short | 10 |
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| **Introduction (20 pts)** | | | | Weight |
| Explains research problem and its context | Complete, accurate, and thorough explanation from general to specific | Fairly complete explanation, struggled a bit with context. Needs more organization | Incomplete with clear gaps in explanation. Provides little to no context | 5 |
| Explains motivation for the experiment | Motivation is relevant and clearly stated | Motivation is there but may not be well articulated | Missing or incorrect motivation for experiment | 5 |
| Contains literature review and multiple references | Demonstrates solid scientific background and review of the literature. Multiple relevant, credible sources are cited. | A good effort was made to review the literature but shy of being solid and there are minor issues with sources cited | Poor or inadequate review of the literature. Less than 3 external references or major issues with sources cited | 10 |
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| **Procedure/Methodology (15 pts)** | | | | Weight |
| Explains how data is gathered / generated | Well-written, easy to follow and technically sound procedure. Can be easily used to replicate results. Limitations of the setup are accurately addressed. | Writing is decent, some parts are difficult to follow, some technical errors but nothing major. Missing some of the limitations of the setup. | Procedure is missing or lacking sufficient detail to be able to replicate results. Contains technical errors. Omitted or poorly addressed limitations of setup | 10 |
| Contains useful figure of the test apparatus | The figure is clearly labelled and very useful in illustrating and replicating the setup. Sketch is professional, accurate. | Figure serves its purpose but suffers from extraneous or irrelevant information or is missing some details. | Figure is missing or lacking sufficient detail to be able to replicate the setup. Very rough or unprofessional sketch | 5 |
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| **Results (25 pts)** | | | | Weight |
| Contains complete, thorough, and accurate results and calculation. These include: energy calculations (electrical, chemical, etc) | All results are complete and accurate and calculations are correct. No technical issues or calculation mistakes. | Most results and calculations are present. Presentation could use improvement and some minor calculation mistakes. | Major results are missing. Calculations are difficult to follow and there are major technical and calculation mistakes | 10 |
| Graphs/tables are used to present results clearly and completely. These include (IV curves, fit functions) | Graphs/tables accurately present the data. Labels are labeled, figures are captioned. Curve fits are well chosen and shown. | Graphs/tables are a fair representation of the data. They lack one or two elements (labels, legend, fit, error bars, caption, etc) | Graphs/tables are missing or not referenced. Missing more than two elements (labels, legend, fit, error, caption etc) | 10 |
| Results are presented for each test in the Procedure section including performance metrics for each test. | Performance results are clearly presented. Comparisons are made when possible. Results appear reasonable and correct. | Most performance results are presented and appear reasonable but some results are missing, incomplete or appear incorrect. | Some performance results are presented and appear reasonable but many results are missing, incomplete or are incorrect. | 5 |
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| **Discussion (15 pts)** | | | | Weight |
| Explanation of results | Offers enlightening and insightful explanation of results. Addresses unexpected results and offer good hypothesis for them | Offers some insightful explanation of results. Addresses unexpected results and offer fair hypothesis for them | Offers weak or poor explanation of results. Does not address unexpected results or offer a decent hypothesis for them | 5 |
| Comparison of results | Offers interesting and important comparisons with other results | Offers some fair comparisons with other results | Offers little to no comparisons with other results. Or the comparisons are flawed. | 5 |
| Discussion of experimental error | Offers thorough and accurate understanding of the sources of error and their significance | Offers some fair understanding of the sources of error, may have omitted a source | Offers little understanding of the sources of error, omitted more than one important source | 5 |
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| **Conclusions (15 pts)** | | | | Weight |
| Summarize results and discussion | Succinct summary of results | Summary is a bit verbose or is missing result | Poor, incomplete or exceedingly short/long summary | 3 |
| Answer key research question posed in the report | Clear answer to research question grounded in results | Fair answer the research question | Poor, incomplete, or misinformed answer to research question | 7 |
| Recommendations for future work, including how to improve the experiment, additional research questions | Thoughtful and enlightened recommendation for future work and improvements | Some fair recommendations for future work and improvements | Poor, incomplete, or misinformed recommendations for future work and improvements | 5 |