

Problem 1

<i>Criteria</i>	Strong	Medium	Poor	<i>Points</i>
Summary Sheet: Interpretation of Contest Problem	Clear background, restates the problem and specifies focus areas of the paper; easy to find and is consistent throughout the paper <i>(5 points)</i>	Mentions the problem, some goals are mentioned and consistently followed <i>(3 points)</i>	Problem not restated or hard to find <i>(1 point)</i>	5/5
Summary Sheet: Overview of Methods	Indicates the methodology used, as well as their purposes in a chronological fashion; easy to understand and not too technical <i>(10 points)</i>	Methods stated, but is unclear and difficult to understand <i>(6 points)</i>	Methods barely or not mentioned with no explanations given <i>(1 points)</i>	10/10
Summary Sheet: Statement of Conclusions	Important results that directly answer the problem are included without becoming too specific, possible strengths and weaknesses mentioned <i>(10 points)</i>	Results included, but not clear and/or too technical <i>(6 points)</i>	Few or no results, strengths and weaknesses not mentioned <i>(1 points)</i>	9/10
Solution: Assumptions/ Justifications	States why assumptions are made, how to justify them, and how they might limit the model <i>(5 points)</i>	More than 25% of the solutions section do not meet the criteria, some major assumptions are mentioned <i>(3 points)</i>	More than 50% do not meet the criteria, major assumptions are left out <i>(1 point)</i>	5/5

Solution: Usage of Method(s)	Method(s) are used correctly, efficiently, and effectively for solving the problem <i>(10 points)</i>	Method(s) are used correctly but do not return a reasonable result or are inefficient for solving the problem <i>(6 points)</i>	Method(s) are incorrectly utilized <i>(1 points)</i>	10/10
Solution: Explanation	All variables are clearly labeled, solution has detailed, accurate, and concise mathematical explanations for each step <i>(25 points)</i>	Presentation of solution is somewhat detailed, accurate, and concise, graphs and illustrations are explained <i>(16 points)</i>	Poor labeling of variables, presentation is vague/unclear and long winded <i>(5 points)</i>	23/25
Solution: Supporting Figures and Graphics*	Graphs are pleasing and straightforward, using <i>enough</i> graphs to explain the model (5 points) *If no graphs are presented and the explanation is sufficient without graphs, the "solution: explanation" section will be worth 30 points.	Some graphs are hard to understand and/or simply unnecessary (3 points)	Graphs are poorly constructed (1 point)	4/5
Solution: Sensitivity/ Stability	Shows how the model responds to change in assumptions or parameters, thoughtfully accounts for and explains any possible errors <i>(5 points)</i>	Some analysis is present, with little to no recognition of errors <i>(3 points)</i>	Insufficient analysis, none or almost no data presented, error interpretation is non-existent <i>(1 point)</i>	5/5
Solution: Strengths & Weaknesses	States when the model can be used, proposes strengths and weaknesses for each model in an insightful and reflective manner <i>(5 points)</i>	Some comments are not insightful or reflective <i>(3 points)</i>	Not enough strengths and/or weaknesses OR less than 50% of remarks are above par (1 point)	5/5

Conclusion	The purpose, method, and result are clearly listed for each model <i>(10 points)</i>	Summary of results is unclear, but the general idea of the group's findings is present <i>(6 points)</i>	Few or none of the requirements are present <i>(1 point)</i>	10/10
Format	0-1 criteria missing from the following: - Length does not exceed 35 pages - References are clearly represented and sources are correctly cited - Formulas and graphs are plainly labeled - Page number, control number are labeled according to the rules - Paper is enjoyable to read - Appropriate font for code and body - File type (PDF) <i>(10 points)</i>	2-3 formatting criteria missing <i>(6 points)</i>	More than 3 formatting criteria missing <i>(1 point)</i>	9/10
<p>Feedback:</p> <p>This is a great report of a mathematical modeling problem. Great model selections, detailed and comprehensive explanations of the methodology and solutions. Especially, the authors use detailed examples to explain some of their steps, which is very helpful for the reader to understand their ideas. The format of the report is neat, and the analysis of sensitivity and the strength/weakness is appropriate.</p>				<p>Total: 95/100</p>

Problem 2

<i>Criteria</i>	Strong	Medium	Poor	<i>Points</i>
Summary Sheet: Interpretation of Contest Problem	Clear background, restates the problem and specifies focus areas of the paper; easy to find and is consistent throughout the paper <i>(5 points)</i>	Mentions the problem, some goals are mentioned and consistently followed <i>(3 points)</i>	Problem not restated or hard to find <i>(1 point)</i>	5/5
Summary Sheet: Overview of Methods	Indicates the methodology used, as well as their purposes in a chronological fashion; easy to understand and not too technical <i>(10 points)</i>	Methods stated, but is unclear and difficult to understand <i>(6 points)</i>	Methods barely or not mentioned with no explanations given <i>(1 points)</i>	9/10
Summary Sheet: Statement of Conclusions	Important results that directly answer the problem are included without becoming too specific, possible strengths and weaknesses mentioned <i>(10 points)</i>	Results included, but not clear and/or too technical <i>(6 points)</i>	Few or no results, strengths and weaknesses not mentioned <i>(1 points)</i>	9/10
Solution: Assumptions/ Justifications	States why assumptions are made, how to justify them, and how they might limit the model <i>(5 points)</i>	More than 25% of the solutions section do not meet the criteria, some major assumptions are mentioned <i>(3 points)</i>	More than 50% do not meet the criteria, major assumptions are left out <i>(1 point)</i>	5/5
Solution: Usage of Method(s)	Method(s) are used correctly, efficiently, and effectively for solving the problem	Method(s) are used correctly but do not return a reasonable result or are inefficient for solving the problem	Method(s) are incorrectly utilized	7.5/10

	(10 points)	(6 points)	(1 points)	
Solution: Explanation	All variables are clearly labeled, solution has detailed, accurate, and concise mathematical explanations for each step (25 points)	Presentation of solution is somewhat detailed, accurate, and concise, graphs and illustrations are explained (16 points)	Poor labeling of variables, presentation is vague/unclear and long winded (5 points)	18+4/25
Solution: Supporting Figures and Graphics*	Graphs are pleasing and straightforward, using <i>enough</i> graphs to explain the model (5 points) *If no graphs are presented and the explanation is sufficient without graphs, the "solution: explanation" section will be worth 30 points.	Some graphs are hard to understand and/or simply unnecessary (3 points)	Graphs are poorly constructed (1 point)	/5
Solution: Sensitivity/ Stability	Shows how the model responds to change in assumptions or parameters, thoughtfully accounts for and explains any possible errors (5 points)	Some analysis is present, with little to no recognition of errors (3 points)	Insufficient analysis, none or almost no data presented, error interpretation is non-existent (1 point)	3.5/5
Solution: Strengths & Weaknesses	States when the model can be used, proposes strengths and weaknesses for each model in an insightful and reflective manner (5 points)	Some comments are not insightful or reflective (3 points)	Not enough strengths and/or weaknesses OR less than 50% of remarks are above par (1 point)	5/5
Conclusion	The purpose, method, and result are clearly listed for each model (10 points)	Summary of results is unclear, but the general idea of the group's findings is present (6 points)	Few or none of the requirements are present (1 point)	9/10

Format	0-1 criteria missing from the following: - Length does not exceed 35 pages - References are clearly represented and sources are correctly cited - Formulas and graphs are plainly labeled - Page number, control number are labeled according to the rules - Paper is enjoyable to read - Appropriate font for code and body - File type (PDF) (10 points)	2-3 formatting criteria missing (6 points)	More than 3 formatting criteria missing (1 point)	8/10
Feedback to the team: The report contains a clear explanation of the model, although some graphs and examples will be helpful to better explain the model and the solutions. The major problem of this model is, it only considers the optimal route with one ambulance and one destination. In realistic, there can be several accidents occurring at the same time, and the goal of the problem is to find an optimal management of multiple ambulance routes.				Total: 83/100

Note:

1. If a team is believed to be intentionally manipulating their results, 25 points will be deducted.
2. Points for each grading criteria may be allocated between the indicated values should a judge see fit. (i.e. Even though "Strong" = 10 points and "Medium" = 6 points, it's possible to give 7-9 points per the judge's discretion)
3. If summary is over 1 page in length, 5 points will be deducted.
4. If a section of the paper exceeds the expectations listed, additional points (up to 20%) may be rewarded for that grading criteria.