Examlet C Example Rubrics

Table 1: Graph short answer (4 points)

Criteria	**Mastered (1)**	**Novice (0)**		
Answer	correct	incorrect		
Criteria	**Mastered (3)**	**Proficient (2)**	**Novice (1)**	**Absent (0)**
Justification	justification given, algebra correct, demonstrates understanding of degree	small error with justification or understanding of concept	large error with justification or understanding of concept	missing justification

Table 2: Are they isomorphic (4 points)

Criteria	**Mastered (1)**	**Novice (0)**		
Answer	correct	incorrect		
Criteria	**Mastered (3)**	**Proficient (2)**	**Novice (1)**	**Absent (0)**
Justification	justification completely correct	small error in justification	large error in justification	no justification given or justification shows no understanding of isomorphism

Table 3: Chromatic number proof (7 points)

Criteria	**Mastered (1)**	**Proficient (0)**		
Raw answer	correct	incorrect		
Criteria	**Mastered (3)**	**Proficient (2)**	**Novice (1)**	**Absent (0)**
Upper bound argument	gives a valid coloring	gives an almost valid coloring	gives an incorrect coloring	missing upper bound
Lower bound argument	gives local feature or a careful analysis of how to color the graph	gives local feature that is not the strictest lower bound, or a tight bound with bad justification	analysis of graph coloring is not careful enough but with small changes could give lower bound	missing lower bound

Table 4: Set equality proof (7 points)

Criteria	**Mastered (3)**	**Proficient (2)**	**Novice (1)**	**Absent (0)**
Chain of equations that relate the two sets	chain of equations correct	small issue in chain of equations	large issue in chain of equations	no attempt at relating equations
Criteria	**Mastered (2)**	**Proficient (1)**	**Novice (0)**	
$A \subseteq B$ proof	uses representative element to prove subset	some error: missing variable introduction, in backward logical order, or uses chain of set builder notation	this half missing	
$B \subseteq A$ proof	uses representative element to prove subset	some error: missing variable introduction, in backward logical order, or uses chain of set builder notation	this half missing	

Table 5: Induction proof (15 points)

Criteria	**Mastered (3)**	**Proficient (2)**	**Novice (1)**	**Absent (0)**
Base case(s)	base case present and checks correct values; algebra is clear	reasonable base case check with incorrect values	unreasonable base case check with incorrect values	missing base case
Inductive hypothesis	correct upper bound (strong induction); claim correctly stated	bound incorrect or weak induction; claim correct	no bound or claim incorrect	missing inductive hypothesis
Inductive setup ($k \to k+1$)	larger problem split correctly into smaller problem(s); IH applied correctly	larger problem split incorrectly, but IH applied correctly after	IH applied incorrectly	not inductive (IH never used)
Algebra $\to$ Conclusion	algebra correct; conclusion is reached	correct algebra; conclusion almost reached; or some small algebra mistake	conclusion unclear/not close to being reached; or large algebra mistake	missing algebra and conclusion not reached
Overall communication and style	good connector words; easy to follow; in logical order	order slightly off, but easy to follow	hard to follow because of lots of unnecessary detail	missing connector words; completely disorganized