**2011 Question 1: Sound (9 points)**

| Total Scored out of 9 |  |
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**Part A: limitAmplitude (4 1/2 points)**

Intent: Change elements of samples that exceed ±limit; return number of changes made

Identify elements of samples to be modified and modify as required

Consider elements of samples

+1/2 Accesses more than one element of samples

+1/2 Accesses every element of samples (no bounds errors)

Identify and change elements of samples

+1 Compares an element of samples with limit

+1 Changes at least one element to limit or –limit

+1/2 Changes all and only elements that exceed ±limit to limit or –limit appropriately

Calculate and return number of changed elements of samples

+1/2 Initializes and updates a counter to achieve correct number of changed samples

+1/2 Returns value of an updated counter (requires array access)

**Part B: trimSilenceFromBeginning (4 1/2 points)**

Intent: Remove leading elements of samples that have value of 0, potentially resulting in array of different length

Identify leading-zero-valued elements of samples

+1/2 Accesses every leading-zero element of samples

+1/2 Compares 0 and an element of samples

+1/2 Compares 0 and multiple elements of samples

Create array of proper length

+1/2 Determines correct number of elements to be in resulting array

+1/2 Creates new array of determined length

Remove silence values from samples

+1/2 Copies some values other than leading-zero values

+1 Copies all and only values other than leading-zero values, preserving original order

+1/2 Modifies instance variable samples to reference newly created array

**Question-Specific Penalties**

–1 Array identifier confusion (e.g., value instead of samples)

–1/2 Array/collection modifier confusion (e.g., using set)