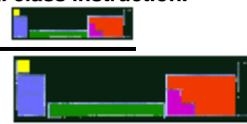


Revised April 2013



Comments on 2008 Multiple-choice

- **Hard Questions**

Of the 75 multiple-choice questions on the MC AP test, there will be a *few* that are either at the periphery of your knowledge, subtly disguised, or perhaps just really difficult. These used to be (prior to 2011) the ones that you left blank **BUT now there is no penalty for wrong answers, so you should have ZERO blanks – you must guess on all questions that you cannot answer.**

The following questions from the 2008 test are in that, 'hard question' category.

| Question | Explanation/Comment | Answer |
|----------|--|--------|
| 2 | Heavy elements with unstable nuclei. TOPIC 2 Factoid, but frankly you should be able to eliminate some answers and could guess | E |
| 28 | C ₂ H ₆ is an alkane and has all single bonds TOPIC 11 or 8 Requires knowledge of "difficult" Lewis structures and/or organic functional groups including benzene. Should be able to see the answer through knowledge of alkanes | C |
| 52 | Temperature changes will not affect either the mass of substance or the moles of a substance. However, temperature changes can influence volume. Since molarity includes consideration of volume, it could be changed. TOPIC 4, tricky | C |
| 61 | Esters have the functional group; $\begin{array}{c} \text{O} \\ \\ \text{R}-\text{C}-\text{O} \\ \\ \text{R} \end{array}$ TOPIC 12. Not tricky and you really should know this. May be able to guess by making the link between fruit smells/tastes and esters. | D |
| 70 | Amino acids have C, H, N and O atoms but no Cl. TOPIC 12, biology knowledge, amino acids are not a very common discussion in AP chemistry classes, BUT "Naturally produced" suggests organic which tells us C and H; "acid" tells us O and "amino" tells us nitrogen – see factoid blog post | B |

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- **Question Analysis**

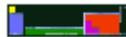
| TOPIC | Question Numbers | # of questions | Comments |
|---|--|-----------------------|-----------------|
| 1 Matter & Measurement | 30 | 1 | |
| 2 Atoms, Ions & Nomenclature | 2*, 24, 27, 32* | 4 | |
| 3 Electronic Configuration | 19, 21 | 2 | |
| 4 Stoichiometry | 31, 33, 34, 36, 38, 41, 47, 53, 58, 62 | 10 | |
| 5 Aqueous Solution | 8, 15, 17, 39, 49, 50, 67, 72 | 8 | |
| 6 Gases | 9, 18, 25, 42, 51, 65, 69, 73 | 8 | |
| 7 Periodicity | 1, 3*, 63 | 3 | |
| 8 Bonding | 7, 20, 22, 37, 40, 56, 57, 71, 75 | 9 | |
| 9 Thermochemistry | 12, 13, 14 | 3 | |
| 10 Transition Metal Basics | 10, 16, 23, 60 | 4 | |
| 11 Organic Basics | 28*, 61 | 2 | |
| 12 Equation Writing | | 0 | |
| 13 Equilibrium | 10, 35, 45, 55, 59 | 5 | |
| 14 Acids & Bases | 4, 5, 6, 48, 64, 68 | 6 | |
| 15 Kinetics | 11, 26, 66 | 3 | |
| 16 Electrochemistry | 44, 74 | 2 | |
| 17 Colligative Properties | 29, 43, 46, 54 | 4 | |
| Miscellaneous (peripheral/general knowledge) | 70 | 1 | 70 Amino acids |
| | | 75 | |

2* could also be considered Miscellaneous

3* could also be considered Topic 3

28* could also be considered Topic 8

32* could also be considered Topic 15



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• **Scoring Analysis**

The grade boundaries below are based upon calculating a multiple-choice score by awarding one point for each correct answer, and subtracting 0.25 points for each wrong answer. Questions omitted (blanks) are ignored and do not contribute anything to your overall multiple-choice score. Prior to 2011, the advice was to leave blank any question that you were clueless about, blank; 'clueless' meaning it was not even possible for you to eliminate a single answer choice.

THIS WAS THE FORMAT USED IN THE 2008 EXAM. But from 2011 onwards, there is no penalty for an incorrect answer, i.e., you should ALWAYS guess and you will have ZERO blanks

Since these grade boundaries are calculated using the old format, and we currently have no data for the new format, here is how you should treat your 75 answers to give you an idea of where you currently stand in terms of an AP score.

1. Award one point for each correct answer.
2. Look at all of the questions that you got wrong, and assign them to one of two categories, EITHER
 - a. A question that under the old format you would have left blank, i.e. a question that you were totally clueless about and could not eliminate even ONE answer. (There should be VERY few of these, and in recent years EVEN UNDER THE OLD FORMAT, many Westminster AP chemistry students have had closer to ZERO 'blanks'), OR
 - b. A question that you could eliminate at least one answer, i.e. one that you WOULD have guessed at on the old format.
3. For each question in category 2b., subtract 0.25 points from the total in #1. Do nothing with the questions in category 2a.

Then, in the first column of the chart below, find the range in which your total multiple-choice score falls. The %'s on that line indicate the proportion of candidates with your multiple-choice score that ultimately achieved the final AP score shown in the vertical column. The shaded boxes show the two most likely AP scores within any range. It's worth noting that your position within a range is important. For example, if you are at the top of a range you are much more likely to have ultimately achieved the higher AP scores.

The numbers in parenthesis underneath each percentage indicate the approximate multiple-choice score range that may most closely correspond to that percentage and that AP score. It is important to note that this is not a scientific mathematical analysis, rather a guesstimate! In addition, it is important to understand that there is no guarantee that a particular multiple-choice score relates to a particular AP score.

| 2008 Multiple-choice score related to final AP score using the old format of penalizing wrong answers | | | | | |
|---|------------------------|------------------------|------------------------|------------------------|------------------------|
| | 1 | 2 | 3 | 4 | 5 |
| 63.00-75.00 (49 possible scores in the range) | 0.0% | 0.0% | 0.0% | 0.3% (63.00) | 99.7% (63.25-75.00) |
| 51.00-62.75 (48 possible scores in the range) | 0.0% | 0.0% | 0.3% (51.00) | 11.7% (51.25-52.25) | 88.0% (52.50-62.75) |
| 39.00-50.75 (48 possible scores in the range) | 0.0% | 0.3% (39.00) | 14.1% (39.25-40.75) | 66.6% (41.00-48.00) | 19.0% (48.25-50.75) |
| 26.00-38.75 (52 possible scores in the range) | 2.0% (26.00) | 21.6% (26.25-29.00) | 61.0% (29.25-37.00) | 15.5% (37.25-38.75) | 0.0% |
| 14.00-25.75 (48 possible scores in the range) | 58.2% (14.00-21.00) | 34.1% (21.00-25.00) | 7.7% (25.25-25.75) | 0.0% | 0.0% |
| 0.00-13.75 (56 possible scores in this range) | 99.05% (0.00-13.50) | 0.5% (13.75) | 0.0% | 0.0% | 0.0% |