Extended Response Assessment Name: …………………………….

**MASS SPECTROMETRY**

In preparation for this assessment, you should, at the very least, have read the following text and completed questions included in the following references:

(i) Nelson Chemistry Units 1 & 2 (text): ‘Forensic testing’, pp 11-12

Section 1.10, pp131-133

(ii) Essential Chemistry Units 1 & 2 (Lucarelli): Sections 1.10 and 1.11, pp7-8

Set 2 Questions 12, 13, 14, 15

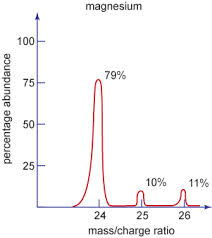
Write an essay (approximately 500 words) about mass spectrometry. You may find the following points useful when structuring your response:

* What is mass spectrometry?
* Explain the process.
* Explain how different atoms of the same element can be made to separate.
* What does a mass spectrum look like and what information can it provide?
* Applications (one or two only).

There will also be three questions to be answered after the essay has been completed.

**Questions**

Answer the following questions bases on the mass spectrum for elemental magnesium shown below.

[](http://www.google.com.au/url?sa=i&rct=j&q=&esrc=s&source=images&cd=&cad=rja&uact=8&ved=0CAcQjRw&url=http://wps.pearsoned.com.au/cd1/49/12619/3230502.cw/content/index.html&ei=y2uOVJ2gOILQPYevgdAN&bvm=bv.81828268,d.dGY&psig=AFQjCNH4OIua3VnoeFs5sHjWJjOyUOBFRQ&ust=1418706187990135)

1. Using the appropriate ‘format’, write the symbols (including atomic and mass numbers) for the three isotopes detected by the mass spectrum above.

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2. Using the numbers given above, calculate Ar (average atomic mass) for magnesium.

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3. A sample of iron was found by a geologist in what she thought might be a meteorite. Explain how mass spectrometry could be used to test this.