

Chemistry

Section I – Part B (continued)

Marks

Question 25 (6 marks)

Explain the need for monitoring the products of a chemical reaction such as combustion.

6

Depending on the chemicals being used in the combustion, it could be extremely dangerous.

There could be flammable material that needs to be carefully monitored and maintained at a specific heat/pressure so it doesn't ignite.

Deadly fumes may be released, which need to be acted upon quickly and effectively so it ~~does~~ does not spread to anywhere else (assuming that the fumes were not supposed to be given off).

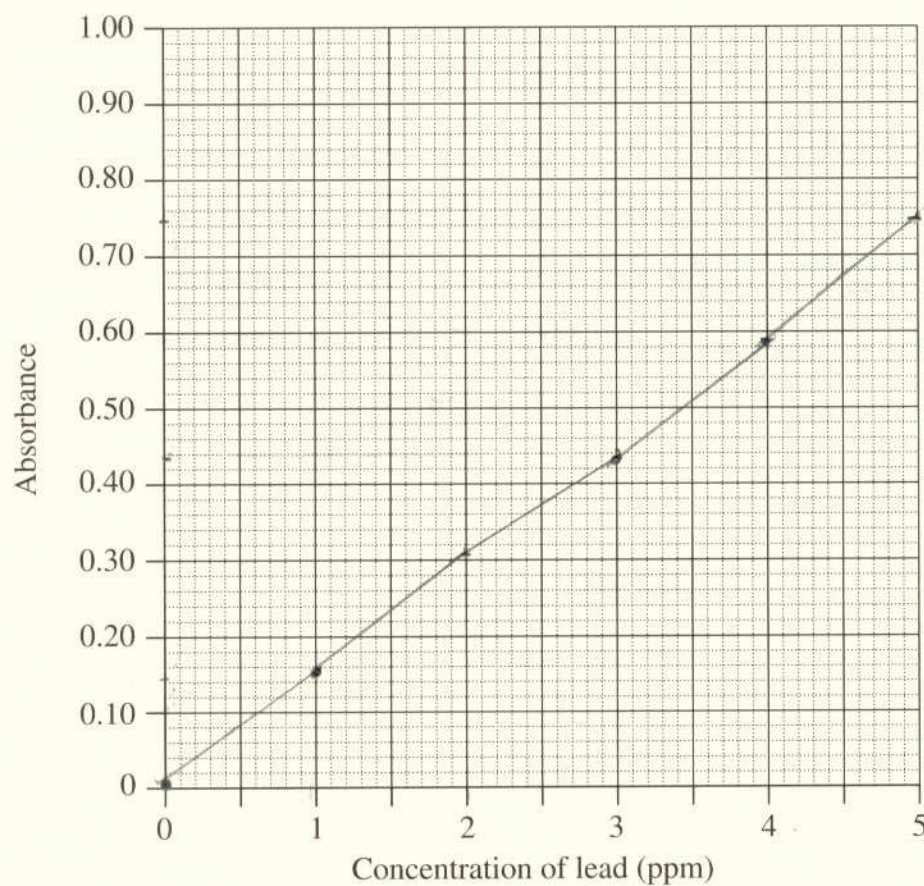
Question 26 (4 marks)

A university student decided to measure the concentration of lead (Pb) in the soil around his home. He prepared five standard lead solutions of known concentration. The absorbance of these solutions was measured. These results are shown in the table.

<i>Concentration of lead standard (ppm)</i>	<i>Absorbance</i>
0	0.00
1	0.15
2	0.31
3	0.44
4	0.59
5	0.75

- (a) Draw a line graph of these data.

1



Question 26 continues on page 23

Question 26 (continued)

- (b) The student prepared solutions from four different soil samples around his home. These solutions were also analysed using the same method. The results are shown in the table. 1

<i>Solutions made from soil samples</i>	
<i>Area sampled</i>	<i>Absorbance</i>
Front garden bed	0.19
Back garden bed	0.09
Mail box	0.22
Back fence	0.11

Determine the highest concentration of lead in the soil around the home.

5ppm → 0.75 absorbance
- mail box.

- (c) State an hypothesis to account for the variation in lead concentration around the student's home. 2

The mail box area would have high concentration because it is not used for walking, running etc so therefore the lead is being built up in the soil. Other areas will have less lead because it's usually in ~~use~~ use.

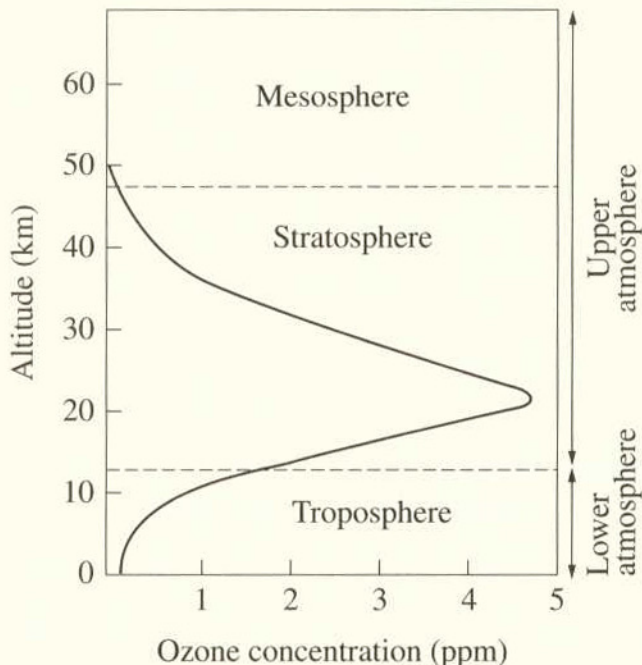
End of Question 26

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Question 27 (4 marks)

Oxygen exists in the atmosphere as the allotropes oxygen and ozone. The graph shows a typical change in ozone concentration with changing altitude.

4



Compare the environmental effects of the presence of ozone in the upper and lower atmosphere.

Ozone concentration in lower atmosphere effects the environment considerably than the ~~more~~ upper atmosphere.
~~The altitude is approx. 12 km~~