

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

Dangerous gasses and products can emerge from the combustion of a substance. The combustion of air for example produces ample amounts of oxygen and hydrogen. Hydrogen is an extremely flammable gas and if someone was to not monitor this particular product, it could result in an explosion of some sort. Safety devises should always be used in these experiments, because the products produced can be extremely harmful, causing injury or even death.

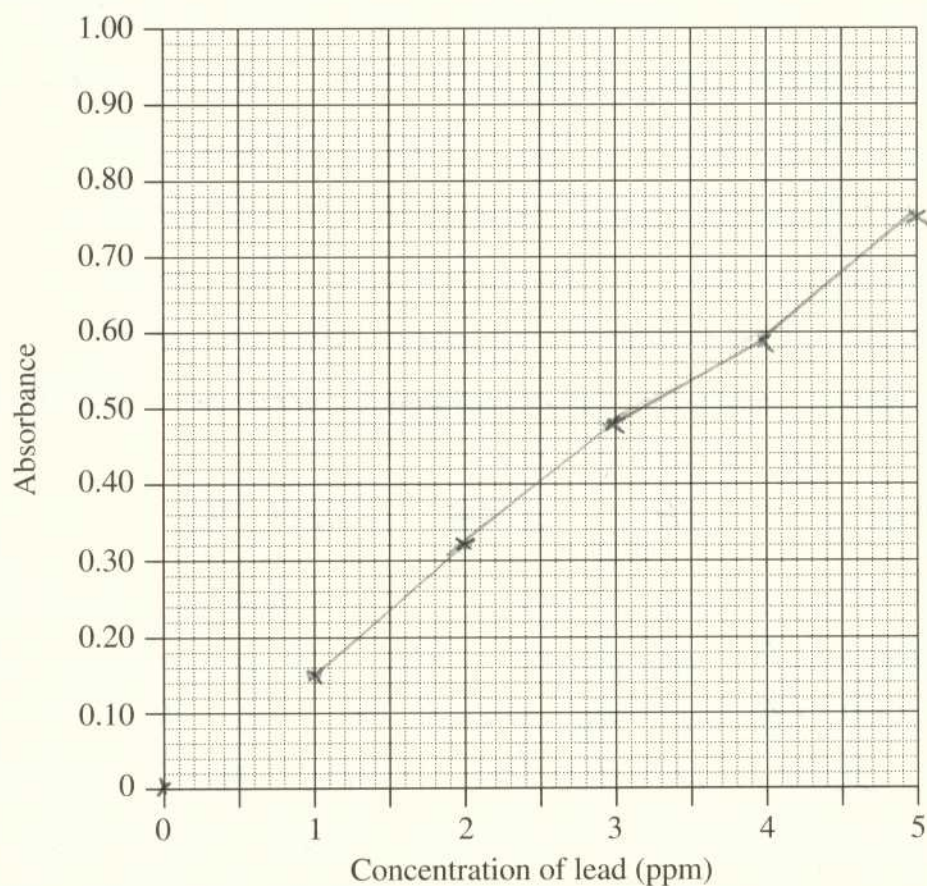
Question 26 (4 marks)

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.

..... mail box

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

..... There is a variation in lead concentration
 the front garden area and mail
 box is higher as more use of the
 area with cars. Yet the back area
 Pb concentration is less due to
 minimised use of it by chemical interferences

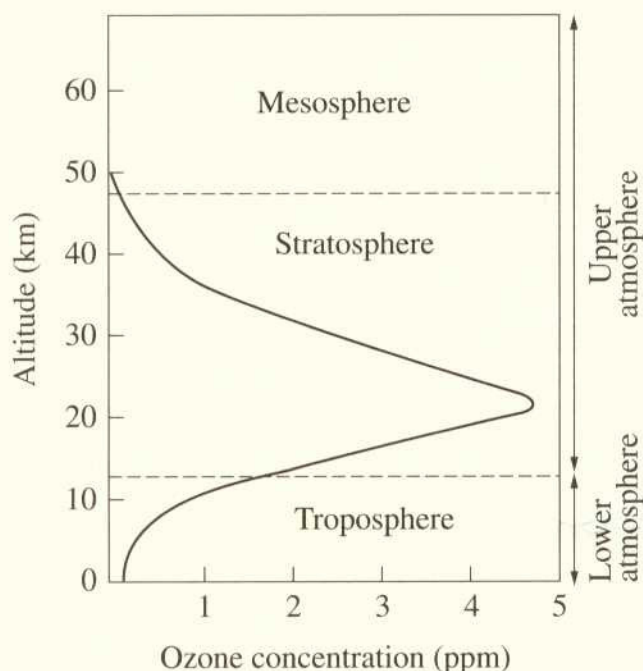
End of Question 26

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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 occurring in the upper atmosphere is good environmentally as it acts as a barrier for radiation so that it is slowed. Low altitude ozone is not so good as it is toxic to living things, it also ~~to~~ keeps heat in as it much denser having an extra atom than oxygen. Due to pollution there is an increase in low & a decrease in high. This is bad & will end up killing us.