Oxford Cambridge and RSA

GCSE Chemistry B (Twenty First Century Science)

J258/04 Depth in chemistry (Higher Tier)

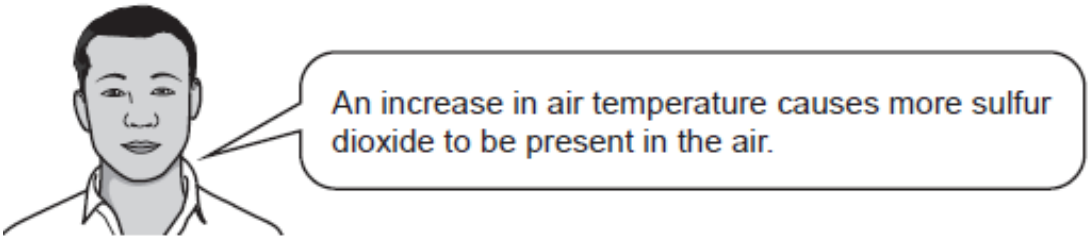
Question Set 30

1 A monitoring station collects data about the weather and the concentration of sulfur dioxide, SO_2, near a power station.

The table shows some data collected at 12.00 midday each day for 7 days.

Day	Air temperature (°C)	Weather conditions	Concentration of SO_2 (mg/m^3)
Mon	24	no rain, no wind	25.0
Tues	20	light rain, windy	8.0
Thurs	16	heavy rain, no wind	3.5
Wed	21	light rain, no wind	16.2
Fri	19	light rain, windy	9.4
Sat	15	heavy rain, windy	
Sun	22	no rain, windy	

(a) Ali looks at the data from the monitoring station and says:



Discuss why this idea is **incorrect**.

Use data from the table to support your answer **[3]**

(b) Use the table to predict the concentration of sulfur dioxide, SO_2, for Saturday and Sunday.

Explain your answers.

Concentration of SO_2 on Saturday ..... mg / m^3

Concentration of SO_2 on Sunday ..... mg / m^3

[4]

(c) The power station agrees to these targets for sulfur dioxide concentration in the air near the power station.

Targets

Sulfur dioxide concentration must be below….

- 200 mg/m^3 averaged over a 1-hour period
- 80 mg/m^3 averaged over a 24-hour period
- 20 mg/m^3 averaged over a one year period.

Jane is a scientist and wants to use the monitoring station to check whether the power station is meeting these targets.

Describe an outline plan for Jane.

Your plan should include:
• the frequency of measurements she needs to make,
• how she needs to process her results,
• how she can judge whether the targets are being met. **[3]**

Total Marks for Question Set 30: 10