























- (d) The sugar concentration in the sugar solution is  $C$ .  
It is suggested that the relationship between  $n$  and  $C$  is given by

$$k = \frac{n - 1.31}{C}$$

where  $k$  is a constant.

Using your data, calculate **two** values of  $k$ .

first value of  $k$  = .....

second value of  $k$  = .....

[1]

- (e) It is suggested that the percentage uncertainty in the values of  $k$  is 20%.  
Using this uncertainty, explain whether your results support the relationship in (d).

.....  
.....  
..... [1]

(f) (i) Describe **four** sources of uncertainty or limitations of the procedure for this experiment.

For any uncertainties in measurement that you describe, you should state the quantity being measured and the reason for the uncertainty.

1 .....

.....

2 .....

.....

3 .....

.....

4 .....

.....

[4]

(ii) Describe **four** improvements that could be made to this experiment. You may suggest the use of other apparatus or different procedures.

1 .....

.....

2 .....

.....

3 .....

.....

4 .....

.....

[4]

[Total: 20]

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