Mark scheme 5054/4 – Alternative to Practical November 2001

1(a)	0.51	1
	47.05	1

(b)	92.2 to 92.3 (units not required)	1

(c)(ii)	The presence of dissolved impurity / substance	1
	reduces the amount of water absorbed	1
(ii)	The sample of water was very pure	
	"Distilled water not as pure as the manufacturers" allowed	1

2(a)	Screen and object perpendicular to rule / rule placed close to apparatus	1
	Smallest division mm	1
	View perpendicular to scale reading	1
	An aid identified	1
	The use of the aid described	1

(b)	Their centres are on the same height / position / on a common axis (or shown on the diagram)	1

3(a)	198 – 200	1
	0.16	1
	64.4	1
	64 / 64.0	1

(b)	As the length is increased the frequency decreases.	1

(c)	f x l = constant	1

4(a)   Any three from:

ITEM	USE
thermometer	to measure the temperature
clock	to obtain temperature/time data
lid / cork	to reduce convection / evaporation
second thermometer	to monitor room temperature
large shield	to reduce uneven cooling by draughts
measuring cylinder	to obtain the same volume of water
stirrer	to maintain a uniform water temperature

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5(a)	Correct axes with a label, scaled with unit	1
	Accurate plotting of at least six points	1
	Good straight line	1

(b)(i)	The graph is linear/ straight / directly proportional / change in I increases at the same rate as the change in N	1
(ii)	Correct working shown	1
	New resistance = 1012 (ohm not essential)	1