Question Number	Scheme	Marks
2 (a)	$\bar{x} = \left[\frac{7690}{100}\right] = 76.9$	B1
	$s_x^2 = \frac{669.24}{99} = 6.76$	M1 A1
		(3)
(b)	$H_0 : \mu_x = \mu_y \qquad H_1 : \mu_x \neq \mu_y$	B1
	$Z = \frac{"76.9" - 75.9}{\sqrt{\frac{"6.76"}{100} + \frac{2.2^2}{80}}} = 2.793...$ awrt ± 2.79	M1 M1 A1
	2 tailed critical value $z = \pm 2.5758$	B1
	Reject H_0/Significant/In the critical region	M1
	There is sufficient evidence to suggest that the mean water temperature after 4 hours for brand *A* is different to brand B	A1ft
		(7)
(c)	(It is reasonable) since both samples are (reasonably) large	B1
		(1)
	Notes	**Total 11**

(a)	**B1**	for 76.9
	M1	for use of $\frac{1}{n-1}\sum\left(x-\bar{x}\right)^2$ oe
	A1	for 6.76
(b)	**B1**	for both hypotheses correct. Must be attached to H_0 and H_1 Allow equivalent hypotheses. Must be in terms of μ Allow any letter for the subscripts
	M1	for a correct method to find the standard error. Follow through their values from (a)
	M1	an attempt at $\pm\frac{a-b}{\sqrt{\frac{c}{100}+\frac{d^2}{80}}}$ with at least 3 of *a*, *b*, *c* or *d* correct.
	A1	awrt ± 2.79
	B1	$z = \text{awrt} \pm 2.5758$ seen (Allow $z = \text{awrt} \pm 2.3263$ if a one tailed test is used)
	M1	a correct statement consistent with their CV and *Z* value – need not be contextual but do not allow contradicting non contextual comments. This may be implied by a correct contextual conclusion.
	A1ft	This mark is dependent on the 2nd M mark being awarded. A correct contextual statement ft their CV and their *Z* value
(c)	**B1**	a correct explanation, which makes reference to both samples. e.g. Do not allow the sample is large enough