

Q	Marking Instructions	AO	Mark	Typical Solution
16(a)	States correct first reason involving the y-axis Accept there is no scale on the y-axis <b>or</b> graph does not start at 0	2.3	E1	Scale on y-axis does not start at zero.
	States correct second reason involving salt purchased and consumed implying data not comparable	2.3	E1	Data is for salt purchased as separate food stuff, not consumed
16(b)	States both hypotheses correctly for two-tailed test Accept $H_0$ : <b>population</b> mean is 78.9	2.5	B1	$H_0: \mu = 78.9$ $H_1: \mu \neq 78.9$
	Formulates the test statistic or uses the correct distribution of the sample mean <b>PI</b> by correct test statistic value or probability or acceptance region Condone 78.9 – 80.4 If region used, condone any $z = (-4, 4)$	1.1a	M1	Test statistic = $\frac{80.4 - 78.9}{25.0 / \sqrt{918}}$  = 1.82  Critical z value 1.96  1.82 < 1.96
	Obtains the correct value of the test statistic 1.82 or obtains the correct probability 0.0345 or 0.0691 obtains acceptance region of [77.3, 80.5]	1.1b	A1	Accept $H_0$ - there is insufficient evidence to suggest that the mean amount of sugar purchased has changed
	Compares their 1.82 with 1.96 or compares their 0.0345 with 0.025 compares their 0.0691 with 0.05 or compares 80.4 with their region [77.3, 80.5]	1.1a	M1	
	Infers $H_0$ accepted <b>CSO</b> Must refer to $H_0$	2.2b	A1	
	Correctly concludes in context that there is <b>insufficient evidence</b> to suggest that the <b>mean</b> amount of <b>sugar purchased</b> has <b>changed</b> <b>CSO</b>	3.2a	E1	
16(c)	Explains role of significance level in rejecting null hypothesis in error Accept Type I error	2.3	E1	There is a 10% chance of rejecting null hypothesis in error
	Explains that there is 10 % chance for this to occur Reference to 10 % chance the conclusion is incorrect scores E0E1	2.3	E1	
Total			10	