Question			Answer	Marks	AO	Guidance
13	(a)		it can't be fully justified because eg different samples may lead to different conclusions **oe** eg the proportion could be 0.35 and 61/140 may have arisen by chance **oe** eg the sample may not be representative **oe** eg the researcher used a sample not a population **oe**	**B1**	**2.4**	do not allow eg the sample is too small eg the sample is too small to be representative
				[1]		

Question			Answer	Marks	AO	Guidance
13	**(b)**		$H_0 : p = 0.35$	**B1**	**1.1**	allow equivalent in words;
			$H_1 : p > 0.35$			do not allow percentages
			p is the probability that a baby (selected at random) is born without wisdom teeth	**B1**	**2.5**	or p is the proportion of babies that are born without wisdom teeth
						B1B1 if other symbol instead of p used if correctly defined
			$P(X \geq k)$ found using $B(140, 0.35)$, where $k = 60$, 61 or 62	**M1***	**3.3**	**or** critical region is $X \geq k$ found from calculation of probability; allow $k = 58$, 59 or 60
			NB $P(X \geq 60) = 0.03272 - 0.033$ or			
			$P(X \geq 62) = 0.01438 - 0.015$			
			NB 0.967…, 0.978… and 0.985…imply **M1**			
			$P(X \geq 61) = 0.02197 - 0.022$	**A1**	**1.1**	or critical region is $X \geq 59$ from 0.0475…. or 0.048
			their 0.022 correctly compared with 0.05	**M1dep***	**3.4**	or 61 correctly compared with their 59;
						allow their 0.978 correctly compared with 0.95
			do not accept H_0 **or** reject H_0 **or** accept H_1 or significant	**A1FT**	**1.1**	**A0** if their $0.022 > 0.05$ or $61 <$ their 59
			sufficient evidence at the 5% level to **suggest** that the **probability** that a baby is born without wisdom teeth **is more** than 0.35	**A1**	**1.1**	dependent on award of all other marks apart from second **B1**
						do not allow eg conclude / prove / indicate or other assertive statement instead of suggest
				[7]		