Question Number	Scheme	Marks
5. (a)	Maximise $(P) = 1.50x + 2.00y + 1.80z$	B1 B1
		(2)
(b)	$\frac{x}{400} + \frac{y}{240} + \frac{z}{300} \leqslant 1 \quad \Rightarrow 3x + 5y + 4z \leqslant 1200$ * (result given in question)	M1 A1
		(2)
(c)	$x \geqslant \frac{40}{100}(x + y + z) \quad \Rightarrow 3x \geqslant 2y + 2z$ $y \leqslant \frac{25}{100}(x + y + z) \quad \Rightarrow 3y \leqslant x + z$ $3y \leqslant 2z$ $(x,\ y,\ z \geqslant 0)$	M1 A1 A1
		(3)
		7 marks
	Notes for Question 5	
a1B1	Maximise stated (accept max but not maximum)	
a2B1	Objective function correct (we do not need to see $P =$) accept $1.5x + 2y + 1.8z$ or if they work in pence so 150x + 200y + 180z accept the use of correct fractions **Do not ISW if they multiply by 10 and $P = 15x + 20y + 18z$ is seen – this is B0**	
bM1	Attempts inequality for total quantity of ice cream: Sum of the correct 3 fractions $\leqslant 1$	
bA1	CSO * (result given in question)	
cM1	Attempts at least two non-trivial constraints (any inequality symbol or equals) (must be using fractions or decimals but not just e.g. 40%) Each inequality must have the correct ingredients (e.g. x, 40/100, and $x + y + z$) correct simplified inequalities can imply this. Accept $2y \leqslant 3z$ for this mark	
c1A1	Two non-trivial constraints correct – simplified with integer coefficients (so accept multiples)	
c2A1	All non-trivial constraints correct – simplified with integer coefficients (so accept multiples) (note we do not need to see $x,\ y,\ z \geqslant 0$)	