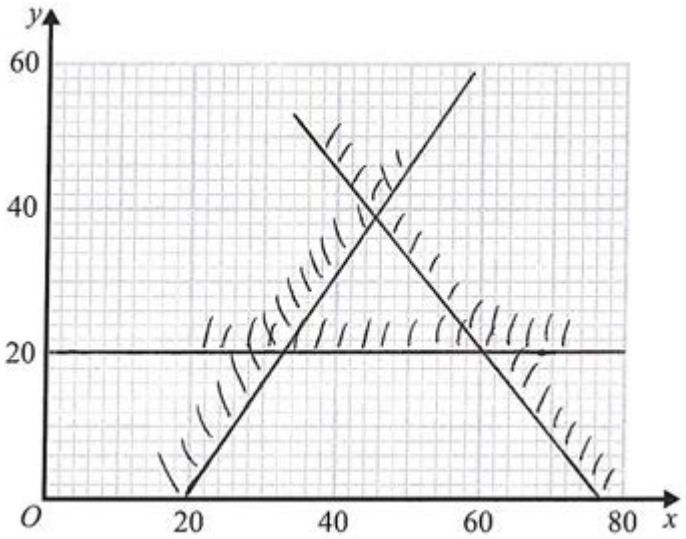
Question	Scheme	Marks
5 (a)	Maximise ($P =$) $x + y + z$	**B1**
		(1)
(b)	$12.50x + 10y + 15z \leqslant 1400$ $\Rightarrow \ 5x + 4y + 6z \leqslant 560$ *	**M1** **A1**
		(2)
(c)	$x \geqslant \frac{40}{100}(x + y + z)$ $\Rightarrow 3x \geqslant 2y + 2z$ $3y \leqslant 2z$	**M1** **A1** **B1**
		(3)
(d)	$3x \geqslant 2y + 2 \times 30$ $\Rightarrow \ 3x - 2y \geqslant 60$ *	**M1** **A1**
		(2)
(e)	 Optimal point (60, 20) 60 red (rose bushes), 20 yellow (rose bushes)	**M1** **A1** **A1** **A1**
		(4)
		(12 marks)

Notes	
aB1	CAO – must have maximise (accept max but not maximum) and $x + y + z$
bM1	Forms inequality using the costs and attempts to simplify. If a correct equation is formed and then changed to an inequality this is M1 A0
bA1	CSO *
cM1	Attempts to form inequality with either 0.4 or 40/100 (o.e. fraction) combined with ($x + y + z$). Accept any inequality or equals for this mark
cA1	CAO – **fully** simplified with integer coefficients
cB1	CAO
dM1	Substitutes $z = 30$ into their $3x \geqslant 2y + 2z$ and attempts to simplify (Allow recovery if their inequality is not fully simplified e.g. $6x \geqslant 4y + 4z$)
dA1	CSO *
eM1	Draws at least two of the three lines with at least one correct (Condone no consideration of $y \geqslant 0$)
e1A1	Any two lines correct $y = 20$ $5x + 4y = 380$ passes through (60, 20) and (76, 0) $3x - 2y = 60$ passes through (20, 0) and (40, 30) (must be within ½ small square from these points)
e2A1	All three lines correct
e3A1	CSO – must have drawn the correct region (we do not require shading or for the feasible region to be marked with *R*, but if this is done, the region selected must be correct) The answer must be in context so $x = 60$, $y = 20$ is A0 Accept 60 red and 20 yellow with no mention of rose bushes. We do not need to see any mention of white roses here.