2. Production Planning and Pricing **(30)**

(a)

	Machine hours	**Labor hours**	**Bottleneck?**
Department 1	0.3*10,000 + 0.5*8,000 + 0.8*4,000 =10,200	0.2*10,000 + 0.2*8,000 + 0.6*4,000 = 6,000	Y: Machine hours
Department 2	0.2 * 8,000 + 0.6 * 4,000 = 4,000	0.2 * 8,000 + 0.5 * 4,000 = 3,600	N

(b)

	Milk	**Whey**	**Cream**
Sales	1.20 $	1.40 $	6.00 $
Direct material	0.10 $	0.11 $	2.00 $
Direct labor 1	0.80 $	0.80 $	2.40 $
Direct labor 2		0.40 $	1.00 $
Overhead	0.03 $	0.06 $	0.11 $
Variable product costs	0.93 $	1.37 $	5.51 $
Contribution margin (with OH)	0.27 $	0.03 $	0.49 $

Optimal production program:

	Milk	**Whey**	**Cream**
Specific CM (with overhead costs)	0.27/0.3 = 0.9	0.03/0.5 = 0.06	0.49/0.8 = 0.6125

Production program	Machine hours in Department 1			**Units produced**
	Remaining	Required	used	
Produce Milk first:	10,000	3,000	3,000	**10,000**
Produce Cream second:	7,000	3,200	3,200	**4,000**
Produce Whey third:	3,800	4,000	3,800	**7,600**

Total contribution to Profit: 10,000 * 0.27 + 7,600 * 0.03 + 4,000 * 0.49 = 4,888