

- The management of Xyz Corporation is currently faced with the problem of determining its product mix for the coming period. Since, the corporation is one of the few suppliers of transformers for laser cover units, only liberal sales ceilings are anticipated. The corporation should not plan on selling transformers more than 200 units of A type, 100 units of B type and 180 units of C type. Contracts call for production of at least 20 units of A type and 70 units of C type. Within these bounds, management is free to establish units production schedules. These are subject to the capacity of the plant to produce without overtime. The production times prevail.

Product	Production Hours per unit				Unit
	Dept. I	Dept. II	Dept. III	Dept. IV	
					Profit (₹)
A	0.10	0.06	0.18	0.13	10
B	0.12	0.05	---	0.10	12
C	0.15	0.09	0.007	0.08	15
Available Hours	36	30	37	38	

Formulate and solve this as an LPP so as to maximize the total profit.

- A small petroleum company owns two refineries. Refinery 1 costs \$20,000 per day to operate, and it can produce 400 barrels of high-grade oil, 300 barrels of medium-grade oil, and 200 barrels of low-grade oil each day. Refinery 2 is newer and more modern. It costs \$25,000 per day to operate, and it can produce 300 barrels of high-grade oil, 400 barrels of medium-grade oil, and 500 barrels of low-grade oil each day. The company has orders totalling 25,000 barrels of high-grade oil, 27,000 barrels of medium-grade oil, and 30,000 barrels of low-grade oil. How many days should it run each refinery to minimize its costs and still refine enough oil to meet its orders?