

1. An oil company produces two grades of gasoline P and Q which it sells at Rs. 3 and Rs.4 per litre. The refiner can buy four different crude with the following constituents and costs:

Crude	Constituents			Price/litre
	A	B	C	
1	0.75	0.15	0.10	Rs. 2.00
2	0.20	0.30	0.50	Rs. 2.25
3	0.70	0.10	0.20	Rs. 2.50
4	0.40	0.60	0.50	Rs. 2.75

The Rs. 3 grade must have at least 55 percent of A and not more than 40% percent of C. The Rs. 4 grade must not have more than 25 percent of C. Determine how the crude should be used so as to maximize profit.

2. A person wants to decide the constituents of a diet which will fulfill his daily requirements of proteins, fats and carbohydrates at the minimum cost. The choice is to be made from four different types of foods. The yields per unit of these foods are given below.

Food type	Yield per unit			Cost per unit
	Proteins	Fats	Carbohydrates	
1	3	2	6	45
2	4	2	4	40
3	8	7	7	85
4	6	5	4	65
Minimum requirement	800	200	700	

Formulate linear programming model for the problem