

1. The manager of an oil-refinery must decide on the optimal mix of 2 possible Blending processes, of which the input and output per production run are given as follows:

Process	Input (units)		Output (units)	
	Crude 'A'	Crude 'B'	Gasoline X	Gasoline Y
I	5	3	5	8
II	4	5	4	4

The maximum amount available of crude A and B are 200 units and 150 units respectively. Market requirements show that at least 100 units of gasoline X and 80 units of gasoline Y must be produced. The profit per production run from process I and process II are ₹ 300 and ₹ 400 respectively. Formulate the above problem as LPP and solve.

2. A city hospital has the following daily requirements of nurses at the minimal level:

Period	Clock Time (24 hours a day)	Minimal no. of nurses required
1	6 a.m. – 10 a.m.	2
2	10 a.m. – 2 p.m.	7
3	2 p.m. – 6 p.m.	15
4	6 p.m. – 10 p.m.	8
5	10 p.m. – 2 a.m.	20
6	2 a.m. – 6 a.m.	6

Nurses report to the hospital at the beginning of each period and work for 8 consecutive hours. The wants to determine minimal number of nurses to be employed, so that there will be sufficient number of nurses available for each period.

Formulate this as LP model by setting up appropriate constraints and objective function and solve