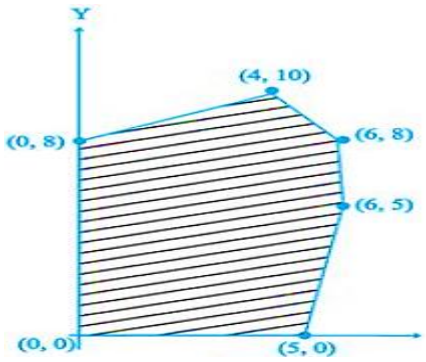
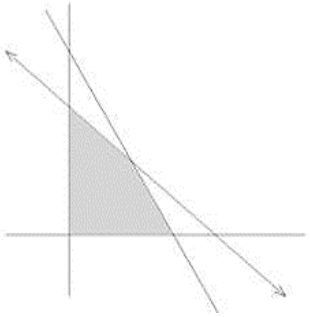
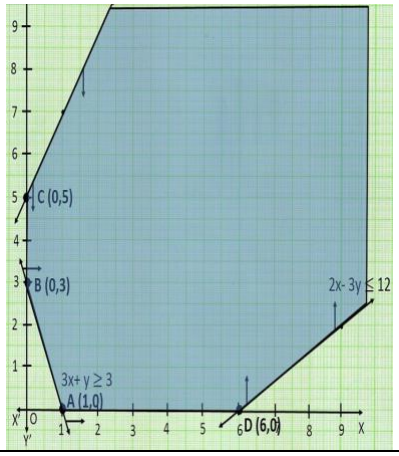
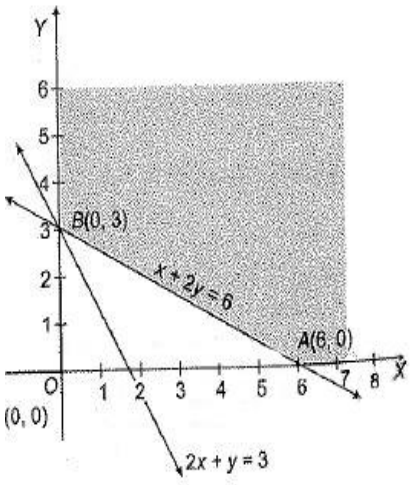
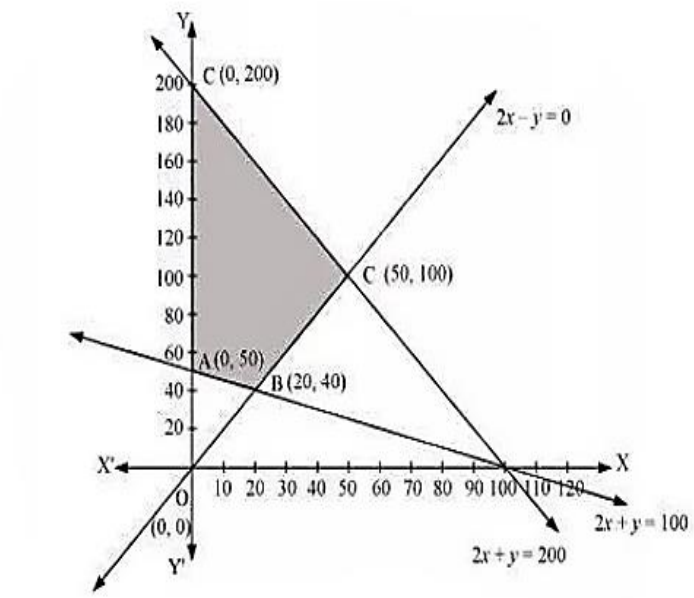
	BCM SCHOOL BASANT AVENUE DUGRI ROAD LUDHIANA CLASS XII(MATHS ASSIGNMENT) ANSWER KEY
1	The feasible solution for an LPP is shown in Figure. Let Z = 3x − 4y be the objective function. Minimum of Z occurs at 1.(0, 8) 2.(0, 0) 3.(5, 0) 4.(4, 10) ANS: (0, 8) 
2	Corner points of the feasible region for an LPP are (0, 2), (3, 0), (6, 0), (6, 8) and (0, 5). Let F = 4x + 6y be the objective function. Maximum of F − Minimum of F = 1.60 2.48 3.42 4.18 ANS:60
3	A cottage industry manufactures pedestal lamps and wooden shades, each requiring the use of a grinding/cutting machine and a sprayer. It takes 2 hours on grinding/cutting machine and 3 hours on the sprayer to manufacture a pedestal lamp. It takes 1 hour on the grinding/cutting machine and 2 hours on the sprayer to manufacture a shade. On any day, the sprayer is available for at the most 20 hours and the grinding/cutting machine for at the most 12 hours. The profit forms the sale of a lamp is Rs 5 and that from a shade is Rs 3. Convert the given statement into constraints and objective function **ANS:** Let x be pedestal lamps and y wooden shades  Z = 5x + 3y 2x + y ≤ 12 3x + 2y ≤ 20 x ≥ 0, y ≥ 0

4	Determine graphically the minimum value of the objective function Z = -50x + 20y subject to the constraints: 2x - y ≥ - 5, 3x + y ≥ 3, 2x - 3y ≤ 12, x ≥ 0, y ≥ 0 **ANS:** 
5	Solve the Linear Programming Problem graphically: Minimise Z = x + 2y subject to 2x + y ≥ 3, x + 2y ≥ 6, x, y ≥ 0. **ANS:** 
6	Show that the minimum of Z occurs at more than two points. Minimise and Maximise Z = x + 2y subject to $x + 2y \geq 100, 2x - y \leq 0,\ 2x + y \leq 200,\ x, y \geq 0$. **ANS:**

	
7	A merchant plans to sell two types of personal computers – a desktop model and a portable model that will cost Rs 25000 and Rs 40000 respectively. He estimates that the total monthly demand of computers will not exceed 250 units. Determine the number of units of each type of computers which the merchant should stock to get maximum profit if he does not want to invest more than Rs 70 lakhs and if his profit on the desktop model is Rs 4500 and on portable model is Rs 5000. By using LPP **ANS Let number of desktop model be x and number of portable models be y** **According to question,** **Since, monthly demand doesn't exceed 250 units.** **□x+y≤250 ...(1)** **Since, maximum invest is 70 lakhs.** **□25000x+40000y≤7000000□5x+8y≤1400 ...(2)** **Also, quantity can't be negative.** **□x≥0,y≥0 ...(3)** **We have to maximize profit Z** **where Z=4500x+5000y**