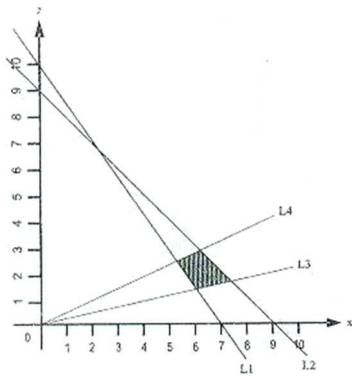


(1)



L1: $5x + 3y = 30$ L2: $x + y = 9$ L3: $y = x/3$ L4: $y = x/2$

The common region (shaded part) shown in the diagram refers to

- (a) $5x + 3y \leq 30$ (b) $5x + 3y \geq 30$ (c) $5x + 3y \geq 30$ (d) $5x + 3y > 30$ (e) None of these

$x + y \leq 9$	$x + y \leq 9$	$x + y \geq 9$	$x + y < 9$
$y \leq 1/5 x$	$y \geq x/3$	$y \leq x/3$	$y \geq 9$
$y \leq x/2$	$x \leq x/2$	$y \geq x/2$	$y \leq x/2$
	$x \geq 0, y \geq 0$	$x \geq 0, y \geq 0$	$x \geq 0, y \geq 0$

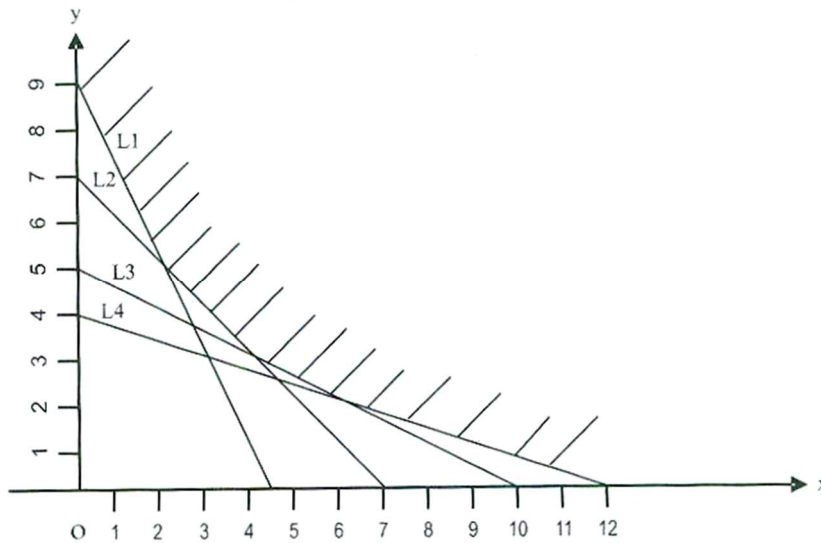
2. A dietitian wishes to mix together two kinds of food so that the vitamin content of the mixture is at least 9 units of vitamin A, 7 units of vitamin B, 10 units of vitamin C and 12 units of vitamin D. The vitamin content per Kg. of each food is shown below:

	A	B	C	D
Food I:	2	1	1	2
Food II:	1	1	2	3

Assuming x units of food I is to be mixed with y units of food II the situation can be expressed as

- | | | | |
|---------------------|----------------------|---------------------|----------------------|
| (a) $2x + y \leq 9$ | (b) $2x + y \geq 30$ | (c) $2x + y \geq 9$ | (d) $2x + y \geq 9$ |
| $x + y \leq 7$ | $x + y \leq 7$ | $x + y \geq 7$ | $x + y \geq 7$ |
| $x + 2y \leq 10$ | $x + 2y \geq 10$ | $x + y \leq 10$ | $x + 2y \geq 10$ |
| $2x + 3y \leq 12$ | $x + 3y \geq 12$ | $x + 3y \geq 12$ | $2x + 3y \geq 12$ |
| $x > 0, y > 0$ | | | $x \geq 0, y \geq 0$ |

3. Graphs of the inequations are drawn below:



L1 : $2x + y = 9$

L2: $x + y = 7$

L3: $x + 2y = 10$

L4 : $x + 3y = 12$

The common region (shaded part) indicated on the diagram is expressed by the set of inequalities

- (a) $2x + y \leq 9$
 $x + y \geq 7$
 $x + 2y \geq 10$
 $x + 3y \geq 12$
 $x \geq 0, y \geq 0$
- (b) $2x + y \geq 9$
 $x + y \leq 7$
 $x + 2y \geq 10$
 $x + 3y \geq 12$
- (c) $2x + y \geq 9$
 $x + y \geq 7$
 $x + 2y \geq 10$
 $x + 3y \geq 12$
- (d) None of these

4. $P = \text{Rs. } 12000$, $A = \text{Rs. } 16200$, $T = 3 \frac{1}{2}$ years. Rate per cent per annum simple interest will be

- a) 15%
 b) 12%
 c) 10%
 d) None of these

5. A sum of money amount to Rs. 4200 in 2 years and Rs. 4800 in 3 years. The principal and simple rate of interest are

- a) Rs. 3800, 31.57%
 b) Rs. 3000, 20%
 c) Rs. 3500, 15%
 d) None of these

6. A sum of money doubles itself in 12.5 years. The number of years it would triple itself is

- a) 25 years
 b) 15 years
 c) 20 years
 d) None of these

7. Rs. 100 will become after 6 years at 5% p.a compound interest calculated annually.

- a) Rs. 250
 b) Rs. 205
 c) Rs. 265.50
 d) None of these

8. The effective rate of interest corresponding to a nominal rate 3% p.a. payable quaterly is

- a) 3.2% p.
 b) 3.25% p.a

- c) 3.0225% p.a
d) None of these
9. A machine is depreciated at the rate of 20% on reducing balance. The original cost of the machine was Rs. 80000 and its ultimate scrap value was Rs. 24000. The effective life of the machine is
a) 4.5 years (appx.)
b) 5.4 years (appx.)
c) 5 years (appx.)
d) None of these
10. The population of a town increases every year by 2% of the population at the beginning of that year. The number of years by which the total increases of population be 40% is
a) 7 years
b) 10 years
c) 17 years (app)
d) None of these
11. The difference between C. I and S. I on a certain sum of money invested for 3 years at 6% pa. is Rs. 40.7592, the sum is
a) Rs. 3000
b) Rs. 3700
c) Rs. 12000
d) Rs. 1000
12. The difference between the S. I and the C.I on Rs. 1400 for 2 years at 5% p.a. is
a) Rs. 5
b) Rs. 10
c) Rs. 3.5
d) None of these
13. The present value of an annuity of Rs. 3000 for 5 years at 4.5% p.a CI is
a) Rs. 23809.41
b) Rs. 32218.63
c) Rs. 32908.41
d) None of these
14. The amount of an annuity certain of Rs. 150 for 8 years at 6.5% p.a CI is
a) Rs. 2190.28
b) Rs. 1290.28
c) Rs. 2180.28
d) None of these
15. A loan of Rs. 10,000 is to be paid back in 15 equal instalments. The amount of each installment to cover the principal and at 8% p.a CI is
a) Rs. 587.87
b) Rs. 587
c) Rs. 578.87
d) None of these
16. The present value of annuity of Rs. 5000 per annum for 7 years at 9% p.a CI annually is
a) Rs. 46000
b) Rs. 46850
c) Rs. 15000
d) None of these
17. A person desires to create a fund to be invested at 10% CI per annum to provide for a prize of Rs. 250 every year. Using $V = a / I$ find V and V will be
a) Rs. 2000

- b) Rs. 2500
c) Rs. 3000
d) None of these
18. The time in which a sum of money will be double at 6% p.a. C.I is
a) 10 years
b) 12 yrs
c) 14.2 yrs
d) None of these
19. The time by which a sum of money would treble itself at 10% p.a CI is
a) 14.28 yrs
b) 14 yrs
c) 12 yrs
d) None of these
20. If the amount of an annuity after 25 years at 5% p.a. CI is Rs. 50000 the annuity will be
a) Rs. 1406.90
b) Rs. 1046.90
c) Rs. 1146.90
d) None of these
21. Given annuity of Rs. 100 amounts to Rs. 3137.12 at 4.5% p.a. C. I. The number of years will be
a) 25 yrs (appx.)
b) 20 yrs (appx)
c) 22 yrs
d) None of these
22. A company borrows Rs. 20000 on conditions to repay it with compound interest at 10% p.a by annual installments of Rs. 2000 each. The number of years by which the debt will be clear is
a) 14.2 yrs
b) 10 yrs
c) 12 yrs
d) None of these
23. Mr. X borrowed Rs. 5120 at $12\frac{1}{2}\%$ pa. CI. At the end of 3 yrs, the money was repaid along with the interest accrued. The amount of interest paid by him is
a) Rs. 2100
b) Rs. 2170
c) Rs. 2000
d) None of these
24. Mr. Paul borrows Rs. 25000 on condition to repay it with C.I at 8% p.a. in annual installments of Rs. 2500 each. The number of years for the debt to be paid off is
a) 10 yrs
b) 12 yrs
c) 11 yrs
d) None of these
25. The C.I on Rs. 4000 for 6 months at 12% p.a. payable monthly is
a) Rs. 243.60
b) Rs. 240
c) Rs. 243
d) None of these

Approved
By DC SIR at 10 Dec 14 20:39