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Section# B

Department BS (SE)

S. ASSIGNMENT operation &
Research

Semester 4th

INSTRUCTOR:-

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Q#1:- A company produces 3 types of products P_1, P_2 and P_3 ?

Production	Time Required		Total Amount
	progress	Finishing	
P_1	12	03	2000
P_2	06	08	800
P_3	08	06	400
C. capacity	3000	1500	

↳ convert the above table to linear programming problem to minimize the profit of the company using Simplex method?

⇒ Solution:-

↳ company manufacture x units of X and y unit of Y . As the profit contributions of X and Y are Rs = 3000 and Rs = 1500 Respectively.

the objective of the problem is to maximize of the profit of Z .

objective function.

$$\text{maximize } Z = 3000x + 1500y$$

This should be done so that the utilization of machine hours by products x and y should not exceed the available capacity.

For machine M_1 $0x + 2y \leq 1000$

For machine M_2 $1x + 2y \leq 800$

But the company can stop production of x and y or can manufacture any amount of x and y it cannot manufacture negative quantities of x and y .

Both x and y are ≥ 0

The problem has got objective function structural constraints, and non-negative constraints and there exists a linear relationship between the variables and the constraints in the form of inequalities.

Q#2:- A manufacture produces two types of products A and B. The plant has production capacity of 500 hours a month.....?

Type of p	Number sold in m	Net profit
A	150	
B	200	

The MD of the company has set the following goals which are arranged in order of priority.

- P1 → No under utilization of plant production?
- P2 → Sell maximum possible number.....?
- P3 → minimize overtime operation of the plant.

⇒ Solution.. Suppose.

x_1 and x_2 be the number of products of A and B. Since overtime operations are not allowed.

$$x_1 + x_2 + d_1 - d_1 = 500 \text{ (plant capacity const)}$$

d_1 = under utilization of product capacity variable.

Since goal is the maximisation of sales,
hence positive deviation will not appear
in constraints related with sales.

So,

$$x_1 + d_2 = 150$$

$$\text{and } x_2 + d_3 = 200$$

→ d_2 = under achievement of sales goals
products A.

→ d_3 → d_3 underachievement of sales
goal for product B.

Now, the goal programming mathematical
model can be.

minimise

$$Z = p_1 d_1 + p_2 d_2 + p_3 d_3$$

subjected to constraints

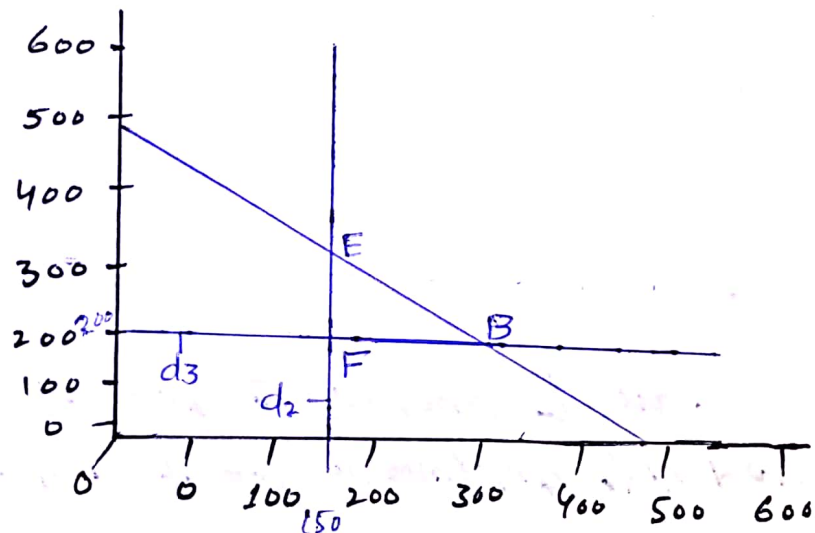
$$x_1 + x_2 + d_1 - d_1 = 500$$

$$x_1 + d_2 = 150$$

$$x_2 + d_3 = 200$$

and $x_1, x_2, d_1, d_2, d_3, d_1 \geq 0$

All the goal constraints can be plotted on the graph,



ANSWER

product A as for product B,
Because the net profit from the
sale of product A is twice the
amount from that of product B.

Q#3:- write a detail Summary of the Research paper provided to you in sic. the Summary must include each section..... ?

ANSWER:-

→ Introduction:- Critical path Methodology is a programming methodology that will Replicate all of the various interactions, Communications, and defects, the critical path method is an algorithm for scheduling a set of projects activities, its a commonly used in conjunction with the program evaluation and Review techniques.

→ Research hypothesis:-

↳ This study uses one Rule among many simple algorithmic rules to simulate the calculation of the longest path; therefore, minimum amount of time is Required to perform an activity from the dragongity algorithms and that the Results can be examined.

→ Literature Review:-

↳ Exploring CPM to calculate the time, Resources, and value required for projects and events. CPM is used to appear the value and time interchanges by activities that take a shorter time at in expensive.

→ CPM Simulation:-

↳ CPM analysis the earliest begin time ES , the earliest end time EF , the latest end time ratio frequency, and total float TF , should be documented for each activity

→ Research methodology:-

↳ The study utilize the dynamic and static group behaviour of dragonflies in nature to obtain and dragonfly algorithm. the benefits of this approach are to use dragonflies behaviour to achieve.

→ Results:-

↳ Separation from each other S_i , to avoid the dragflies from static collisions with other fellow humans. coordination and alignment A_i is the dragflies behaviour to match speed with other fellow humans.

→ Discussion:-

↳ most of the ventures are target-oriented and arranged endeavors, whose objective is to create, recreate or change different offices. these kinds of ventures include dynamic processes which will be isolated into four stages. Conceptualization, definition, realization, and utilize.

→ Conclusion:-

↳ The dragfly Rule is successfully intended to optimize the conclusion. we have used this techniques to solve these problems, taking into account projects cost, activity duration and activity duration and activity correlations in the Required path diagram.