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Programe = BS (SE)

Assignment = Operation research

Max $Z = 3000 X_1 + 1500 X_2$

$12X_1 + 3X_2 \leq 100$

$6X_1 + 8X_2 \leq 800$

$8X_1 + 6X_2 \leq 900$

$X_1, X_2 \geq 0$

adding the Slack Variable

$Z - 3000X_1 - 1500X_2 = 0$

$12X_1 + 3X_2 + S_1 = 1000$

$6X_1 + 8X_2 + S_3 = 900$

Table 1

Basic	W	X_1	X_2	S_1	S_2	S_3	R.H.S
W	1	-300	-1500	0	0	0	0
S_1	0	12	3	1	0	0	1000
S_2	0	6	8	0	1	0	800
S_3	0	8	6	0	0	1	900

Table 2

Basic	W	X_1	X_2	S_1	S_2	S_3	R.H.S	
W	1	-300	-1500	0	0	0	0	
S_1	0	1	1/9	1/12	0	0	83.33	$R_2 \times 1/12$
S_2	0	6	8	0	1	0	800	

Table 3

Basic	W	X_1	X_2	S_1	S_2	S_3	R.H.S
W	1	0	-750	250	0	0	299990
S_1	0	1	1/9	1/12	0	0	93.33
S_2	0	6	9	0	1	0	800
S_3	0	8	6	0	1	1	900

R_{+300}

Table 4

Basic	W	X_1	X_2	S_1	S_2	S_3	R.H.S
W	1	562.5	0	250	750	0	329,990
S_1	0	1	1/12	1/12	1/12	0	93.33
S_2	0	6/8	1	0	0	0	100
S_3	0	8	6	0	0	1	900

Maximum Valu is

329,990

at $X_1 = 0$ $X_2 = 900$

X

A manufalor Produce two types of Products A and B

Ans:

Types of product

Types of Product	number Sold in month	Ned profit
A	150	
B	200	

The MD of the Company need the following goal which are arrange in order of pivoity

P_1 No under utilization of plant Production Capacity.

P_2 Sell maximum Possible number of product A and B the MD has twice as much desire to sell product. A as

amount from that of product B

(8) P_3 Minimise overtime operation of the plan. formullate the above as a goal proframing Problam and Slove it So

let X_1 and X_2 be the numbar of Product A and B Since over time operetion are not allowed

$$X_1 + X_2 + d_1^- - d_1^+ = 500 \text{ (plat capacity)}$$

Where d_1^- = under utilisation of production Capacity Varriabll

d_1^+ = overtime ~~Varriabll~~. production operation capacity Varible

Since goal is the maximum of Sales. hence positive deviation will not appear in Contrure related with Sales

d_2^- = under achevment of Sale goal for (A) d_5 = under acheiment of Sale good for (B)

Now the goal Programing mathematical model can be writting as minimize

$$Z = P_1 d_1^- + 2P_2 d_2^- + P_2 d_3^- + P_3 d_1^+$$

Subject to the Constraints

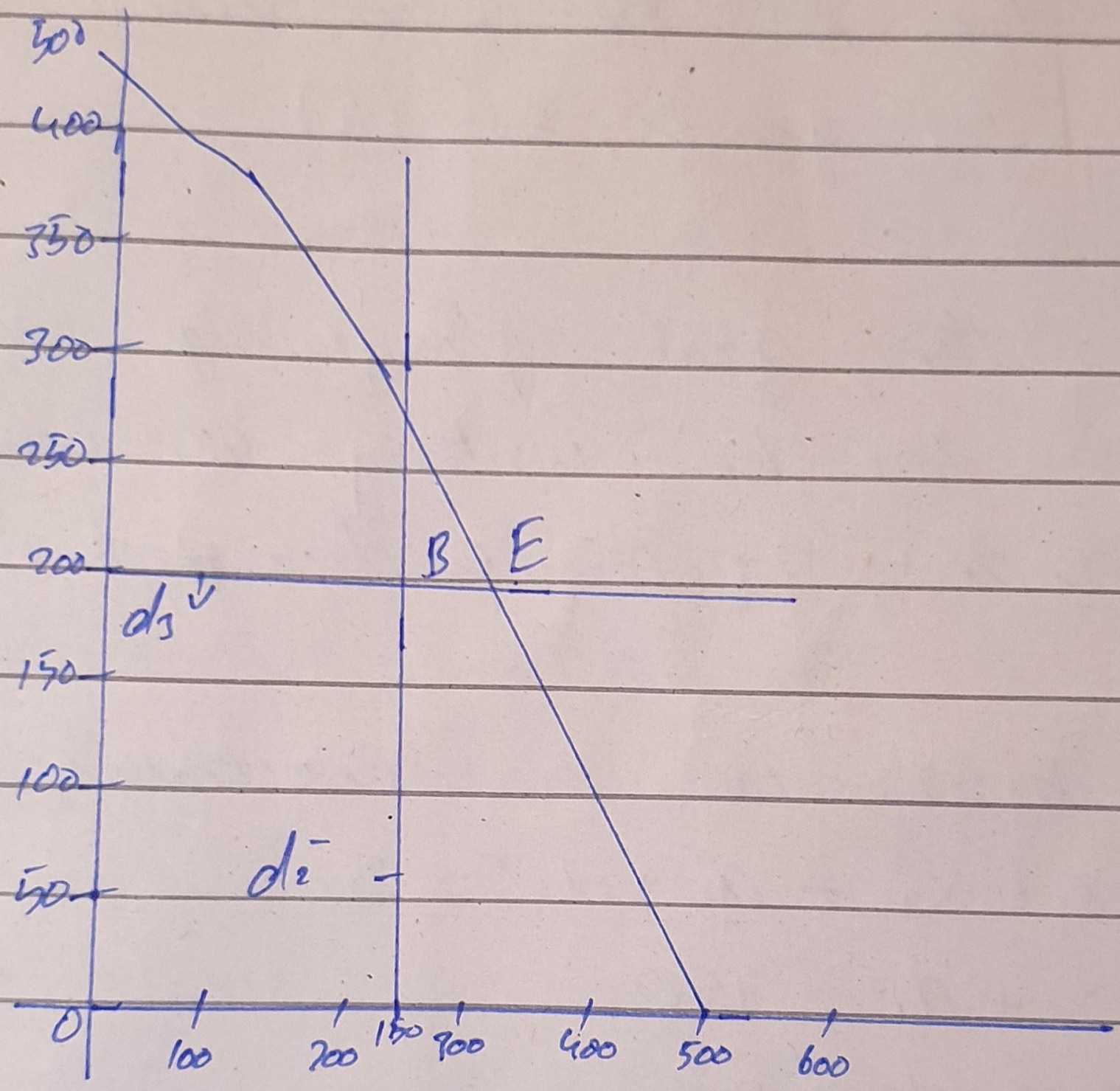
$$X_1 + X_2 + d_1^- + d_1^+ = 500$$

$$X_1 + d_2^- = 150$$

$$X_2 + d_3^- = 200$$

and $X_1 - X_2, d_2^-, d_3^- d_1^+ \geq 0$

XU the goal contraints can be plotted on the ~~graph~~ graph


500
400
350
300
250
200
150
100
50
0
100
200
150
900
400
500
600
B
E
d_1
d_2

Exploring Time-Cost Balance in Critical Path Method (CPM) using Dragonfly Algorith (DA)

Abstract:.

The CPM (Critical path Methoad) methed is used Searching the huge path to do required activities for Compressing and clamping back the time it takes for a project which finally ends up inside the Creating of an identical and intensive network of activities inside the loigeted working. The CPM network analysis can provide project management with a Convenient tools

1) Introduction:.

Critical Path methodakeeps

defect a path within a kind of a Project network diagram. The CPM methodology is to Searching out the largest path to doing activities hence Compressing and deduction of time which takes for a project that ends inside the creation of an even deep network of presidency activities inside the targeted Surroundings. It is required to Calculate the time it taken to complete for whole project, Constituting a quantity of times which Spent performing all the Specified interactions on the route with respect to a number of essential Conditions.

time is required to do a work from dragonflies algorithm to do a work and the result can be checked. The result of the papers show that each of the planned dragonfly algorithms benefits from high explorations due to Programmed static Swarming behaviours of dragonflies

2) Literature Reviews:

Critical Path Method (CPM) in the past, many authors have Succeeded in the exploiting (CPM) to Calculate times resouses and value required for Projects Eg events. It is

evolved over centuries to figure out such best and economical behaviours. A formula is projected the noted properties The no gift (NFL) Theorem performs The motivated of the job to propose this optimizer so this formula may go completely specified algorithms on some problemat throughout this paper to spice up important path methodology work notice activities which minute quantity expensive and time consuming then select The foremost time and economical route for the project.

3) CPM Simulation:-

In the classic CPM analysis the very beginning time atomic number 99. The

frequancy and total float time TF Should be documanted for each activity. The criticallx of an activity will be fine supported TF. A true project might coupees many distinct activities. To reveal The implicit schedule risk of every activity and of the total projects the simulation many have to be run many times.

4) Research Methodology:

This Study Utilizes the dynamic and static group behaviur of dragonflies in nature to obtain a dragonfy algorithm. The properties of this approch are to ule the dragonfyies behavior to compare goal such

in routing, searching and avoiding behavior danger, which have used behavior to design, which we have used an algorithm for routing. The patterns of dragonflies are as follows.

- Splitting
- Getting
- Coherence
- Search for food
- Deviation from the enemy

$$Ei = \bar{x} + x$$

Where "x" is the position of current individual & "$\bar{x}$" show the position of the enemy situational vector are calculated by

$$x_{i+1} = x_i \triangle x_{i+1}$$

Where "1" is repetition

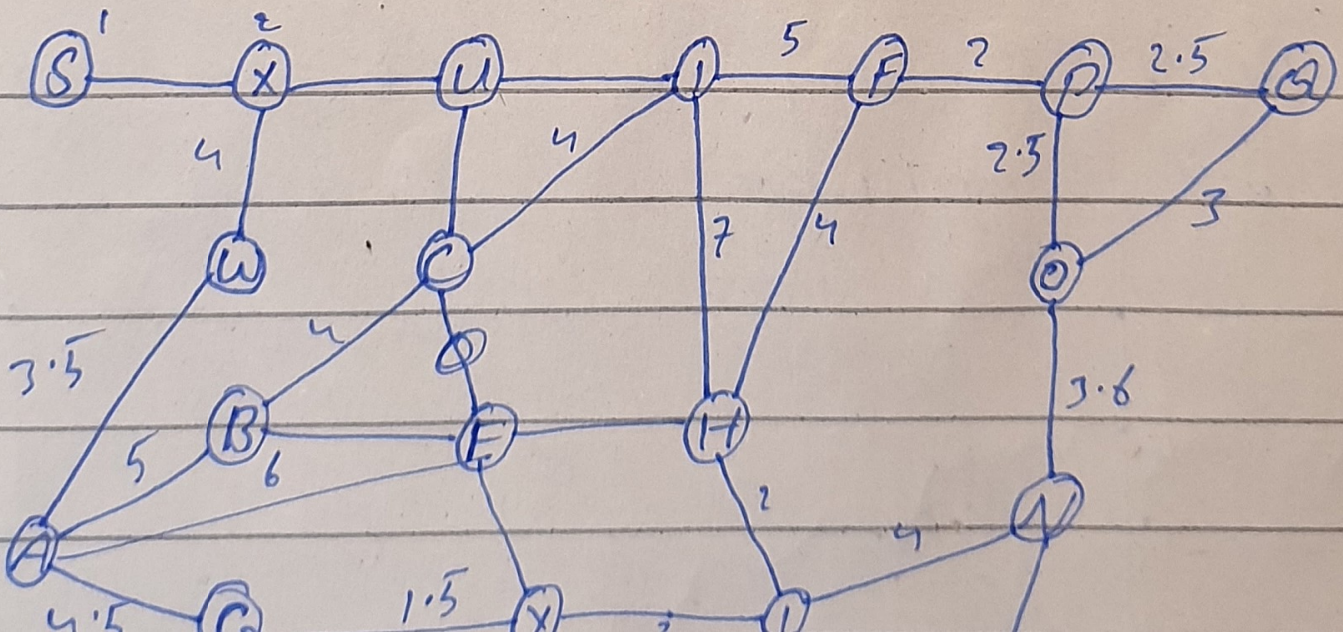
- Coherence and Solidarity.

$$Ci = \underline{Ei^n} = \frac{1}{x_j} - x$$

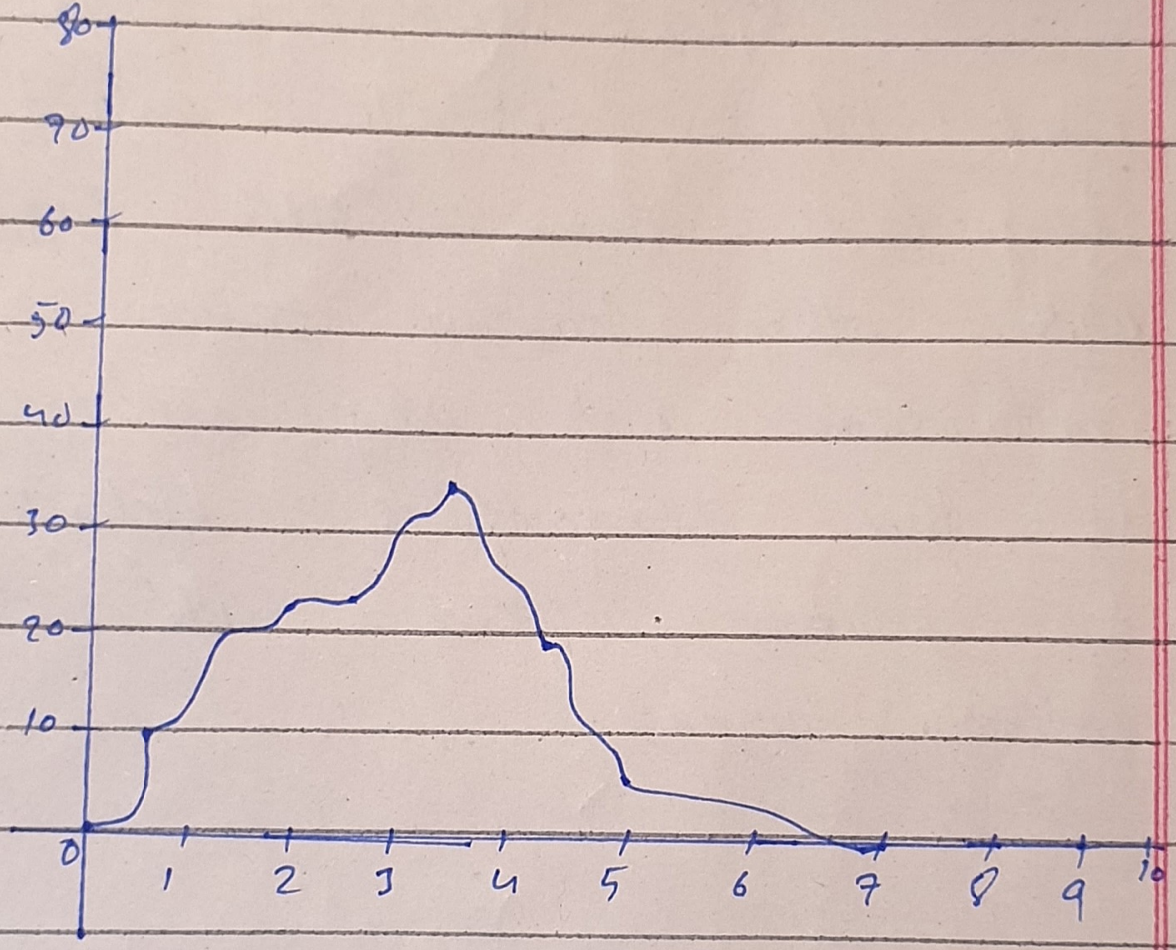
$$x_{t+1} = \begin{cases} \text{if } r < T & (\Delta x_{t+1}) \\ x_{t+r} \geq T & (\Delta x_{t+1}) \end{cases}$$

5) Results

Spec Separation from each other Si: To avoid the dragonflies from Static collision with other human fellows. Cordination and alignment: A: is the dragonfly's behaviore to match speed with other fellow human.



longest route in Shortest time



Route Searching results between source and destination.

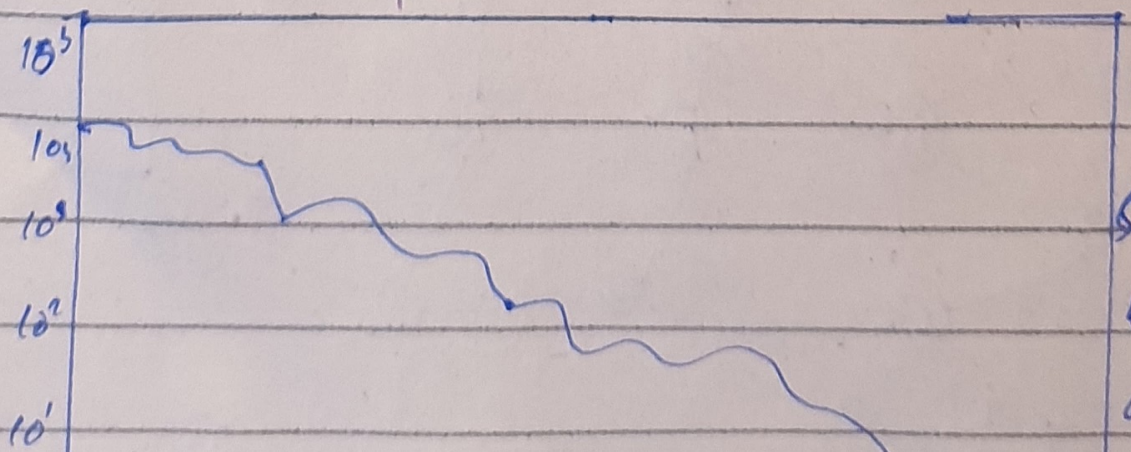


Fig: 8 Route Search time cost between source and destination