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Semester :- 4th Section :- A.

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Q1 Max $z = 3000x_1 + 1500x_2$

$12x_1 + 3x_2 \le 1000$

$6x_1 + 8x_2 \le 800$

$8x_1 + 6x_2 \le 400$

$x_1, x_2 \ge 0$

Now adding the slack

$z - 3000x_1 - 1500x_2 = 0$

$12x_1 + 3x_2 + S_1 = 1000$

$6x_1 + 8x_2 + S_2 = 800$

$8x_1 + 6x_2 + S_3 = 400$ (1)

Table 1

Basic	w	x_1	x_2	S_1	S_2	S_3	RHS
w	1	-3000	-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	400

Table 2

Basic	w	x_1	x_2	S_1	S_2	S_3	RHS
w	1	-3000	-1500	0	0	0	0
S_1	0	1	1/4	1/12	0	0	83.3
S_2	0	6	8	0	1	0	800
S_3	0	8	6	0	0	1	400

$R_1 \frac{1}{12}$

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Table #3

Basic	w	x_1	x_2	s_1	s_2	s_3	R.H.S
w	1	0	-7500	250	0	0	249,990
s_1	0	1	1/4	1/12	0	0	83.33
s_2	0	6	18	0	1	0	800
s_3	0	8	6	0	0	1	400

Table #4

Basic	w	x_1	x_2	s_1	s_2	s_3	R.H.S
w	1	5625	0	250	750	0	324,990
s_1	0	1	1/4	1/12	0	0	83.33
s_2	0	6/8	1	0	1	0	100
s_3	0	8	6	0	0	1	400

Maximum value is

324,990

at $x_1 = 0$ $x_2 = 400$

Question no. 2

Types of product

Types of product	No sold in a month	net product
A	150	
B	200	

The MD of the company has set the following goal which are arrange in order or Priority P_1 no under untilisation 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 for product B, because the

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the net profit from the sale of product A is a twice the amount from that of product B

P_3 minimize over time operator of the plant fomilase the above as a goal programing problem and solve it so let x_1 and x_2 be the number of product A and B since over time operation are not allowed

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

where d_1^- = under utilization of product capacity variable

d_1^+ · overtime production operation capacity variable.

Since goal is the maximum of sales since positive deviation

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will not appear in contrains related with sales.

Then $x_1 + d_2^- = 150$

and $x_2 + d_3 = 200$

d_2^- = under achievement of sale goal for (A)

d_5 = under achievement of sale of goal for B.

Now the goal programming mathematically model can be written as minize

$Z = P_1 d_1^- + 2P_1 d_1^- + P_1 d_5^+ + P_3 d_1^+$

$x_1 + x_1 + d_1^- + d_1^+ = 500$

$x_1 + d_1 = 150$

$x_1 + d_1 = 200$

and

$x_1, x_1, d_1, d_2^- d_1^+ \geq 0$

All the goal contrain can be plotted on the graph

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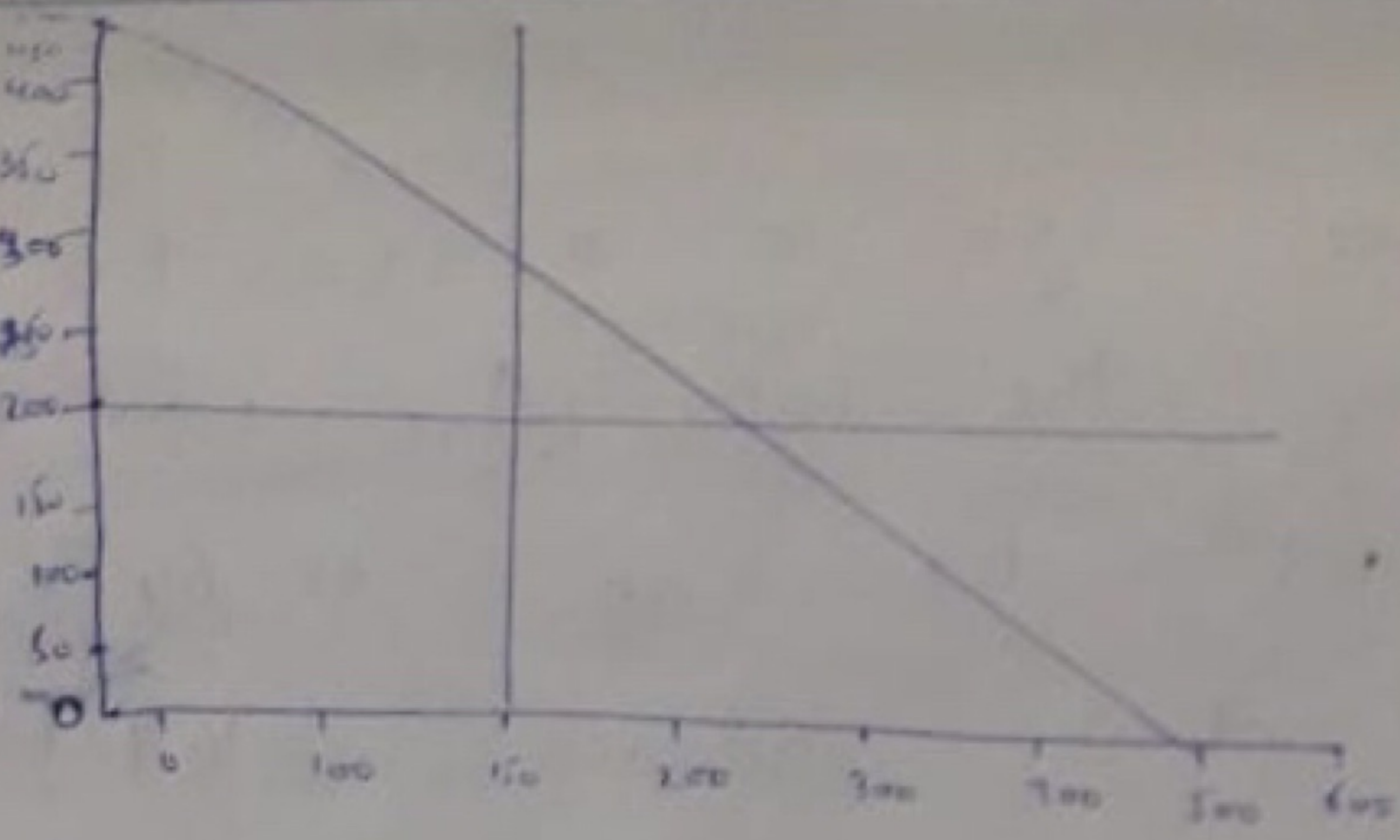

Q3 Improving Time-cost Balance in critical path method (CPM) using Dragonfly Algorithm.

Ans Abstracts. The CPM method is used for searching the huge path to do required activities for 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 creation of an identical and intensive network analysis can provide project managment with a continental tools.

Introduction:-

critical path methodology is a programming methodology which replace all the various interaction, communication and deflect a path with in a kind of 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 targetted surroundings It is required to calculate the time it taken

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to complete for whole project constituting a quantity of times which spent performing all the specified interaction on the route with respect to a number of essential conditions.

Research hypothesis:- This type of methodology use only a rule among many specified algorithm rules to simulate the calculation of the largest path, so minimum time is required to do a work from dragonflies algorithm and the result can be checked. The result of the papers show that each of the planned dragonfly algorithms benefits from high exploration due to programmed static swarming behavior of dragon flies.

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Literature review:- critical path method in the past, many authors have succeeded in the exploiting CPM to calculate times resources and value requiring for projects and events. It is very important that creatures notices. The simplest things and perform tasks in group. It is obvious that they have to be evolved over centuries to figure out such best and economical behaviours. A formula is projected the noted properties the no gift theorm perform the motivated of the job to propose this optimize. so this formula may go completely specified algorithms on same problems that have not been solved to this point. It is formula that have capability to use and implement through out

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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

CPM:- formulation:- In the classic CPM analysis the very begining time atomic number 99, the advance stating time LS, the earliest and time EF, the ~~last~~ latest end time radio frequency and total float time should be documented for each activity. The critical of an activity will be find supported TF A true project might compass many distinct activities To reveal the impliest schedule rift of every activity and of the total projects.

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The simulation may have to be run many times.

Research Methodology:-

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

where "x" is the position of current individual

& "x" shows the position of the enemy.

Situational vectors are calculated by

$$x_{t+1} = x_t + \Delta x_{t+1}$$

where t is repetition.

- coherence and solidarity

$$C_i = \frac{\sum_{j=1}^{n} x_j}{N} - x$$

x = current position

x_j = Position of rear based ... the

- setting

$$A_i = \frac{\sum_{j=1}^{n} v_j}{N}$$

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

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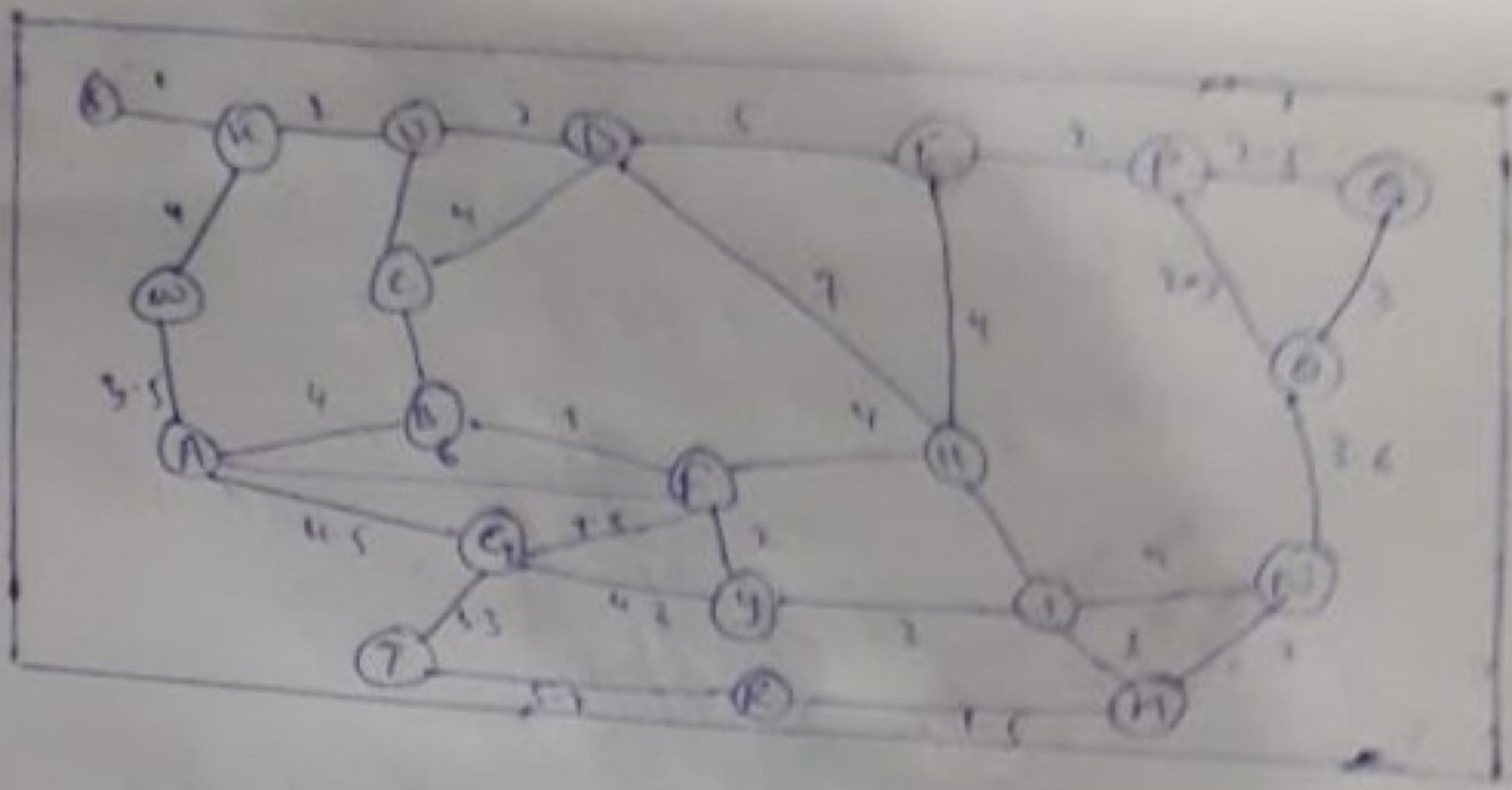
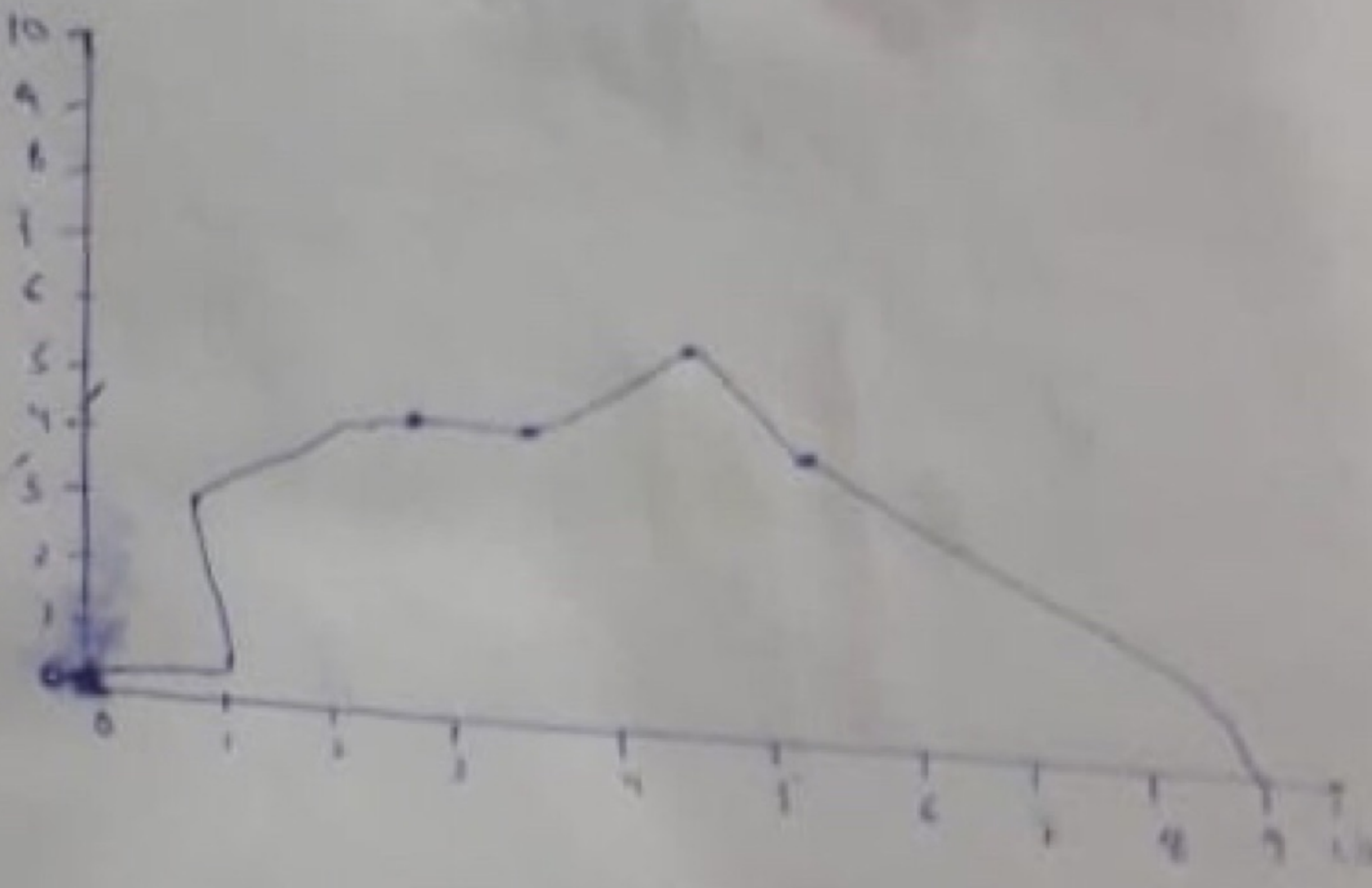
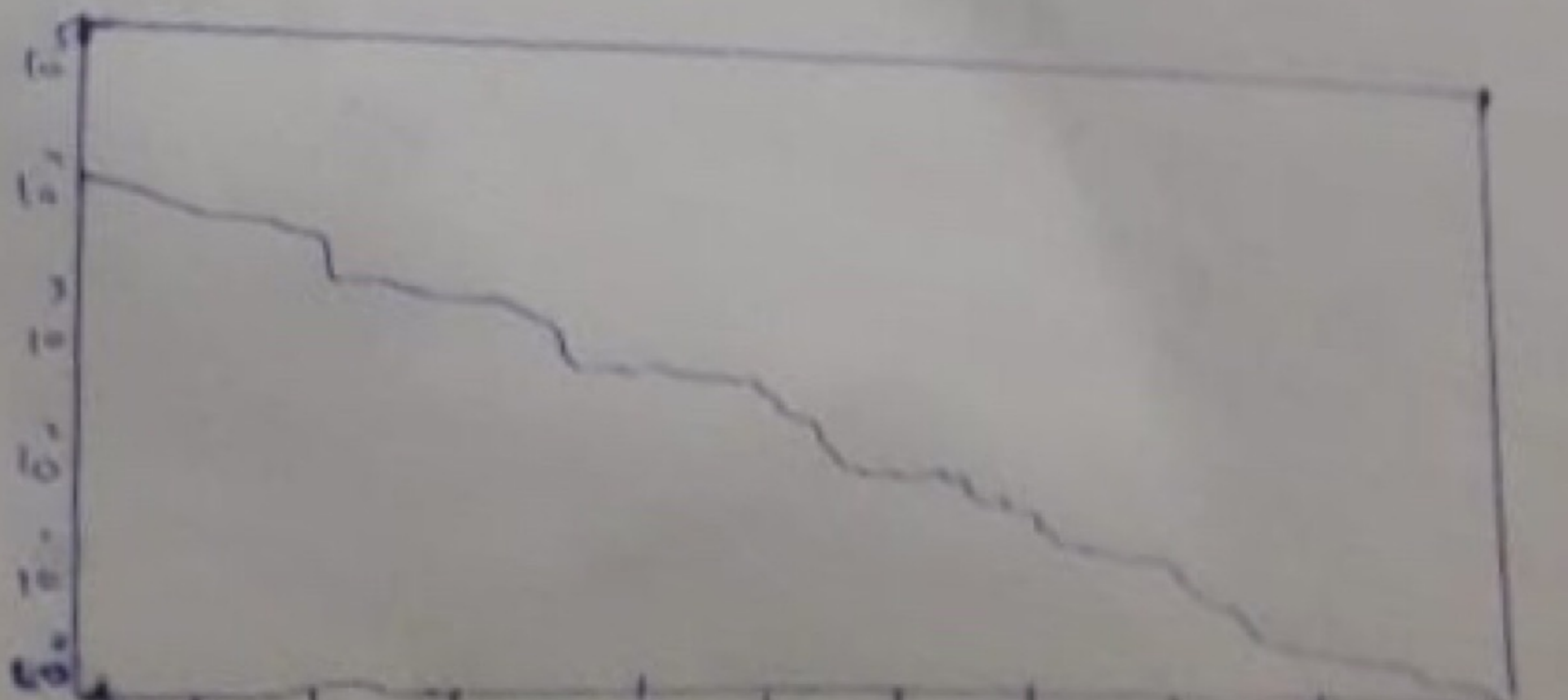
Results.







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