EKSITY OF BENIN Write on both sides of the paper LINEAR PROGRAMMING PROBLEM (LPP) A Linear programming problem deals with optimising (maximison or minimising) a function it constitutes three ponts objective function, docision variable, and constraints The functions which need to be optimised are known as Objective functions The variables whose values determine Solution of the given problem are collect decision variables of the problem. The set of anouttaneous linear equations or inequalities that the problem is subject to are known as constraints Kules 1. There must be a well-defund Dispective to achieve maximise or minimuse. 2. There is only a finite number of decision 3 At least a few of the veronices must be on limited highy, which gives rise to 4. All the cleasests should be grantificable. assume only non-negative values S both the given objective function and constraints must be linear equations 6 There must be attemptine course of

Do not write



UNIVERSITY OF BENIN

Write on both sides of the paper



Programming problems These are a chass of problems that determine the optimal allocation of limited resumces to meet given objectives

Mathematical programme If the objective and abstraits of an extrematical functions and functional relations, it is called Matematical regramming and is generally given as

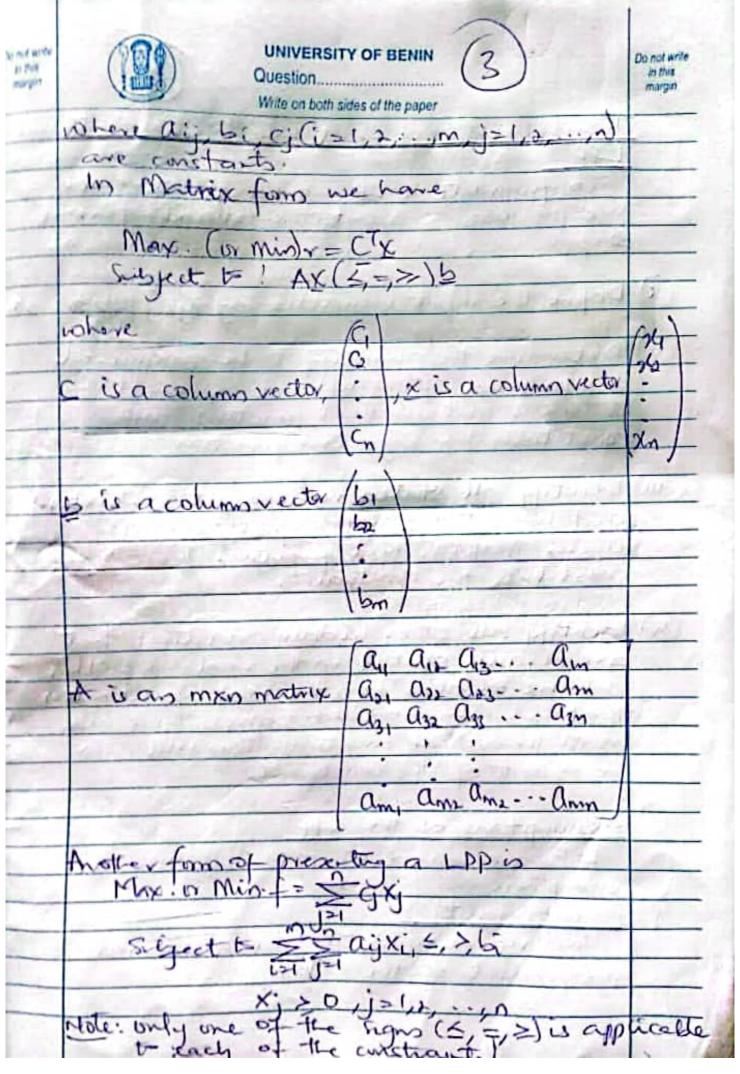
Max. or Min. f = f(x) Subject to q. (X) L or > bi

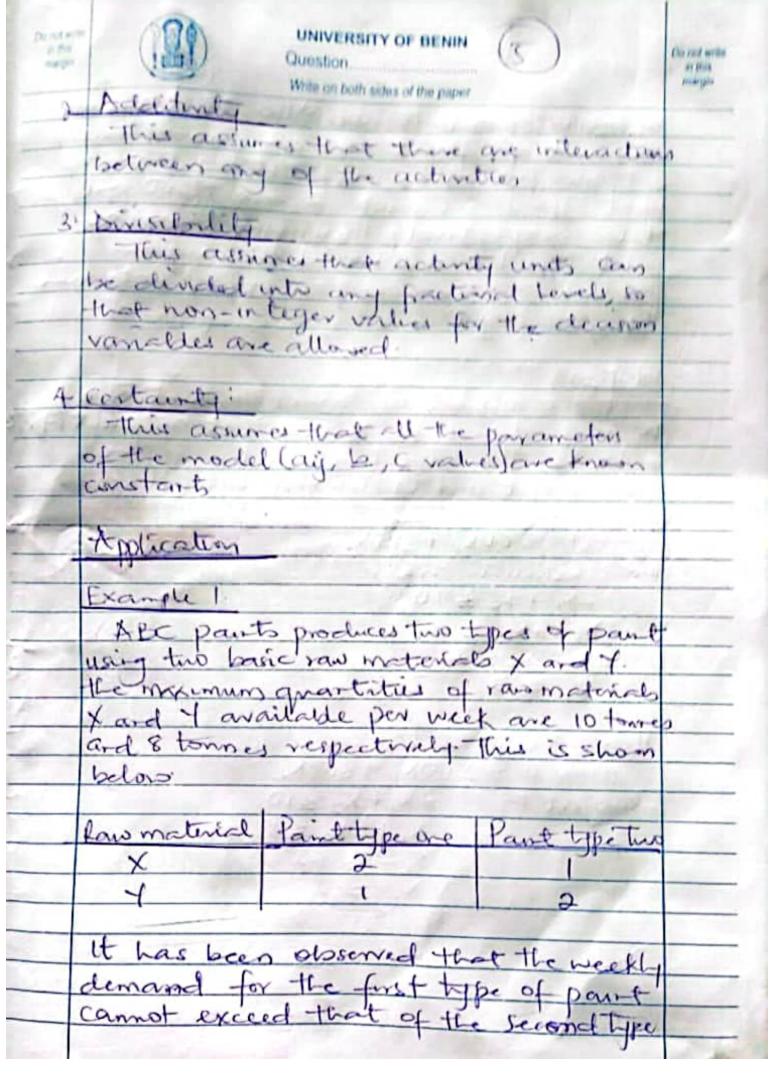
where x = (x,x,...,x), i=1,2,...,m.

If q i = 0 and bi = 0 ti = 1,2,..., m, then (*) called an unebnstrained mathematical programming problem

LPP Here the objective functions fox and constraint gitxl; i=1,2,...,m are all linear functions. Hence a LPP is defined so Max. Cormin r= C1x1 + C2 x2 + C3 x3+... + Cn X2 Subject to: aux, +aux, +aux, +aux, +...+aux, =>6 anx, +a, x, +a, x, + a, x, + ... +a, x, x, => 6, azx, +az, x, +azx, +...+axx, <=>b amix, + amox + amox + . . + amix = = > bon

X1, X2, X3, ... X20





Do not write UNIVERSITY OF BENIN Do not write in this. Question..... maypit margin Write on both sides of the paper demand for paint type one cannot exceed a tonnes per week. The profit per time of paint type I and paint 2 over 7700 and paint type I and a world the company produce in maximize gross profit? Determine the does bobt. Solution Let the number of tonnes of point type I to be produced be X1 and that of point type I be X2. The Objective function is the gross profit and is denoted by P. Hence P= 200x, +300x2 the constraints are 2x, + x2 10 X1+9X3 < 8 x1-x2 < 2 x, 5 2 Hence, the problem is Wex . b = 200x, +300x2 Subject to 2x,+x2 <10 X, +2X2 <8 K- K 52

THE REST	Question	District write in this margin
	trangle 2.	
	A factory manufactures two types of	
	and sells were of the	
· ·	DE DE DO TIME CON LINE	A
	to product is processed on two	-
	11 and M. ISE > regimes	
2	minutes of Mo Type T requires 1	
0	unnite M2 Machine M, is available for	
,	ot more than 6 hours 10 minutes while	
0	Machine Mo is available for 10 hours	
	turing any norking day torondate the	
	mobiles de an LPP & as to maximise	
-1	Fe profit.	
C	oln	
		-
a	Let -11-e factory decide to produce x, units of product	T
t	o maximise its profit	
	To produce these units of type S and ty	re T
P	or My and 24 + X2 processing min	nter
1	on My and 224 + X2 processing ministers on	193.
5	since machine Mi is available for man	commo
6	homs 40 minutes and Ma is available	for
m	eximum 10 homs doing any norking de	7,
the	e constrainte are	
	x, +x, = 400	-
	2x, +x2 < 600	
a	the William Control of the Control o	
7 20	24, 1/2 20	

One not write in this margin Write on both sides of the paper	nis
since the profit from type S is \$2 and the profit from type T is \$3 the total profit is 2xy +3x2. As the objective is to maximuse the profit the objective function is to maximuse Z = 2xy +3x2.	
post is 2x +3x. As the objective is	
to maximuse the profit the objective function	
is to maximise Z = dx + 3xx.	
and the state of t	TO
No complete formulation of The LDD is	
Maximize Z = 2xy + 3x2 subject to the constr	David
$x + x \leq 400$	
2ny+x2 = 600	
and when the same of the same	
14, 1/2 > 0.	-0
in one was the second of the s	5.0
A CONTRACTOR OF THE PARTY OF TH	100
The same of the sa	
The state of the s	40000
Top and the sale of the sale o	

UNIVERSITY OF BENIN n file Question White on both sides of the paper circultical Method Definition of Terms All the solutions of a LPP that satisfy all the constraints 2 Fearlie Legion This is the set of all feggele solutions Optimal solution the objective functions as constraint 4. Ortunal value function corresponding to an optimal collition This is obtained by substituting the optimal solution 5 Unique optimal solution If there is only one founds solution that satisfies both the objective function and constituents (that is an optimal solution) such an optimal idution is said to be unique optimal solution there are more than one solution to an LPP, the LPP is saud to have multigle or Alternative optimal Whaten.

UNIVERSITY OF BENIN Do not write Do not write Question..... in this Write on both sides of the paper hen the LPP involves tween two points. Hence we nee a constraint. Steps. Consider all the constraints to be equations For each anstraint when x (or x)=0 an on graph sheet to indicate the Mark in the parts optain n by consideri the fearable Politing

