Resource Management Techniques

CAG-1

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Part B

6A. Given the 4P

Parimge 2 = 3x + 2x3+ 5x3

subject to 7,+4x2 ≤420

3x, +2x3 =460

7,+272+73-4136

74 X2, X3 20

By intend using nonegotive stack reviables 5,5 & theytended

form of the APP becomes

1721/20130 2 -3X, +2x>+ 5x3+05, +05, +05, +05,

Subjed to 2,+4x2+0x3+5,+0x3+053=420

2x,+ 0x2+ 2xx+ 05,+ 62+03=460

X1+2954 X3+ OSI+ OS2+ S3 = 930

and 7, 20, 225, 3,53 30

Sirro hoso dos a grundons with a variables the mited

busic fashle.

5,=420, S=460, C=620 whose, = 25= 5=0

	-Mittal Headion
	6 (325006).
	(B) XB X, X2 X, 8, S2 S3 0
	0 5, 420 1 4 0 1 0 0 1 =
, <i>e</i>	0 52 460 3 0 (2) 0 1 0 (60 >2360
	6 53 430 1 2 1 0 0 1 030 200
	29-65.00-3-2-5000
	-: (2j-G)=-5 15 most negative.
	tofind(23-(3)=-5 3 max nagrae.
	Mon-basic variable 7, enters no basics.
	5, nd loaving variable
	find the sation of in Signi ais >0 }
	= min Sai dis of
	$0 = min \left\{ \frac{460}{2} - \frac{300}{100} \right\} = min \left\{ 230, 430 \right\} = 0$
	. The leaving variable of which correspond to the minimum
	datio 0=230.
	- old pivot revation = pivot element
	= (460 3 0 2 0 1 0)=3

- 236 至 01 0 至 0. 1000 S, canadian: 0/ds, equation - (its entering) ~ (her prod Column) ~ (prod Cofficient) (equation (-) = 4001 4 0100 0 0 0 0 0 0 0 420140100 News a causin = 6/ds sequestion - (iteratoring) > (pivol equation) : 430 1 2 1 0 0 1 $\frac{230 \pm 010 \pm 0}{250 \pm 200 \pm 1}$ New (2,-(;) agn= 6/d(2;-6) equation - (isentong) first pivot (officet) construction = 6 -3 -2 -5 00 1190 至 0 ~5 0 至 0 1150 \$ -2 0 0 5 0 The improved busic familie. Solutionis given in the following simpler tables

Then the first it esation will be

32 5000 (b × b × b X, To 2 X3 S1 S2 S3 0.5, 420 140100 420 -105 5 a, 230 301020 0 53 200 $\frac{1}{2}$ (2) 0 0($\frac{1}{2}$), $\frac{200}{2}$ = 100 7-6. 1150 9/2-20050 Since the so is an (2,-(2)=-2 the cussed busic feesible solution is in not optimal. Second iteration! (325000)(BXB XB X, 82 X3 5, 52 53 0 5, 20 2 00 1, 2 5 7, 20 201020 2 22 100 = 4 1 0 0 = 4 5 27-67 1350 4000021

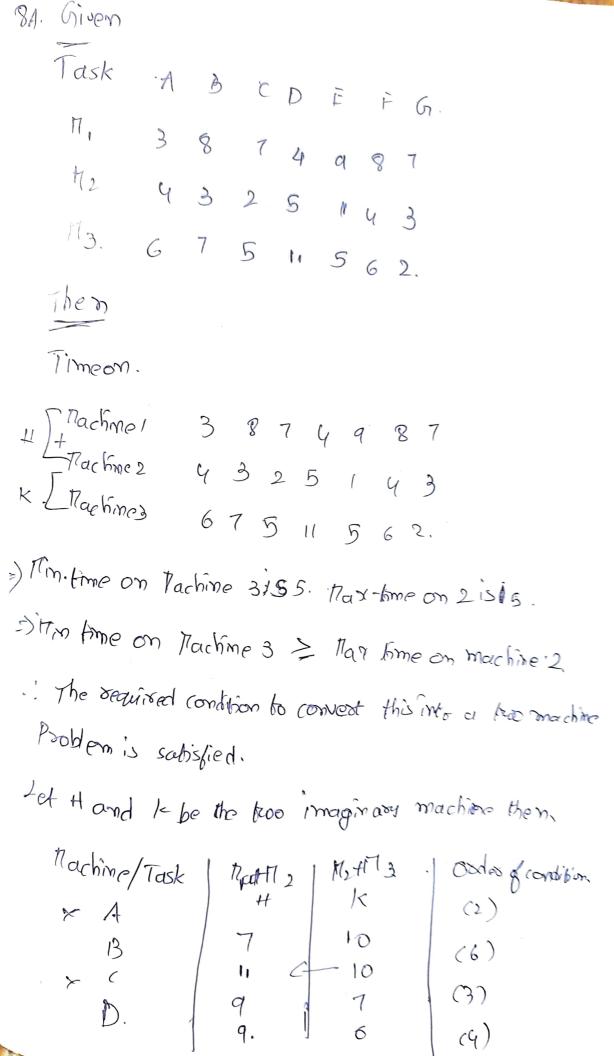
G

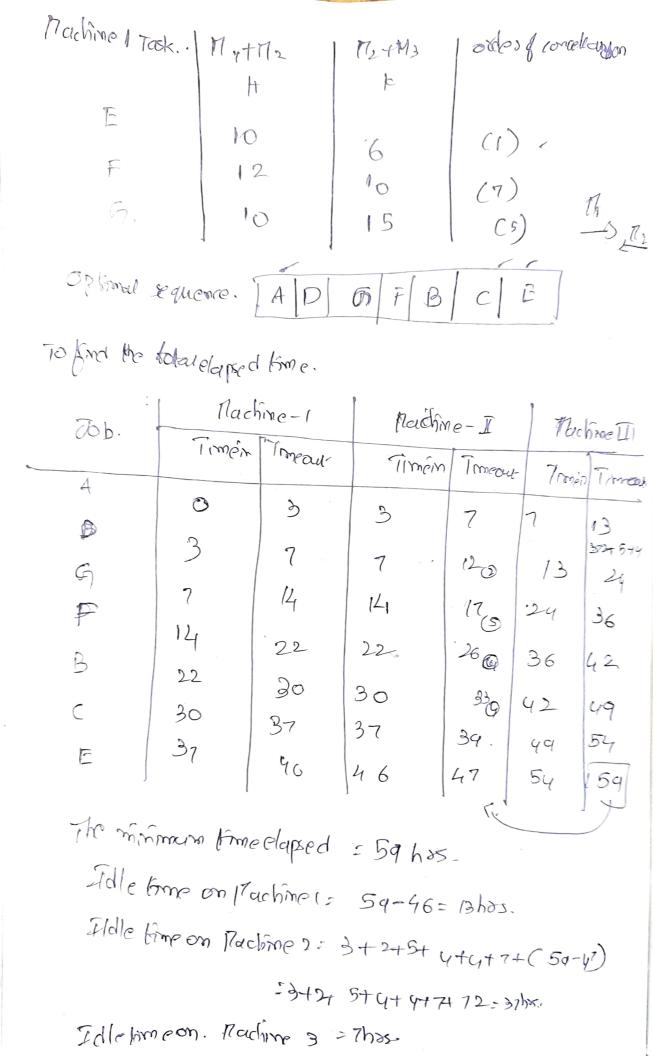
is since all (2,-6) >0 the custof busic possible solution is optimed. -- The optimal solution's Track

2=1350

0(,00 X2=100

12 530





14. slack variables: slack variables represents an unused quantity of recourses: It is added to less than carequal type of constraints in order to get an equalty constraint.

Supplus variables in A supplus variable represents threatment by which solution values exceed a desaure. These are also called as 'Negative stack variables'. Jusplus variables like stack variables (array a zero coefficient in the obsective bunction. It is added to greater than (a) equal to (>) type constraints in order to get an equality constraint.

Astificial vasiobles!

Ashficial variables are added to those constraints with the (Mality (=) and greated than an Equal to (=) sign. An artificial variable is added to constraints to get an initial solution to an 4p problem.

24). Optimal solution - a feasible solution is said to be the optimal solution if it minimise total toansportion cost bolomad Tansportation problem. a transportation problem muhich the total supply bromall sources is equal to the total

demand in all the destandions. 31) Mathematical formulation of an assignment problem can be Stated as follows. 2= 5 % Cio dio where rive so, if ith person is assignate the stook. Tubled to conditions. Zi Zi =1, 0=1, 2--- n Any foasible solution of un Assignment problem consids (2n+) Variables of which the (n+) wouldes as 3000. (A) Elletime's a period time associated with employes whiting. Idle time is a period of time in which an asset is ready and ovialable but not doing anything padudivo. This why Folle Ame is sometimes of exord

to as waiting time. Idle time is when a machine is waiting for imput material.

SA) Fromomic order quadrity (Eco.) is the ideal order quadrity a company Should purchase to minimize inventory rosts.

such as holding costs, shortage costs, oxder costs etc.