1(0)

$$d\kappa = -f(x) = -(0x+p)$$

$$g(x) = arg mn f(x_1)$$

$$\frac{\partial f(x_i)}{\partial \alpha} = 0$$

re XX= dxtdx du Tada

Mouton's method

Tflx) = Gx + P

Tr2fbc) = Q

XXH = XX - Q-1 (QX+P)

100 1000 1000

 $\frac{min}{x}$

916 to (x-2) (x-4) 60

L(x;4)= x241 + M(x2-6)c+8

JUX;M)= 2x+(2x-6)4 =0

2x+ 2x4-64=0

20c (R+M) = 6 P x= 34

1+M

If constraint is inactive, then 1/20 +17 which well lead to x =0

but x2-6x+8 40

850 - It 19 impossible.

Those by Comptermentage sleepnes,

MBIEX) CFO

giral is ordine Contraint, than.

$$\frac{3(2-6)\times 48=0}{(314)^2-6(314)+8=0}$$

$$\frac{(314)^2-6(314)+8=0}{(1+14)^2-(1+14)}$$

$$\frac{9(1+14)^2}{(1+14)^2-(1+14)}$$

 $9H^2 + - 18H(1+H) + 8(1+H)^2 = 0$ $9H^2 - 18H - 18H^2 + 8 + 16H + 8M^2 = 0$

According to KKY Condition,

nt is a minima of

hi(xm)=0

9,1xx)=0 M9,(x+)=0

M20

Thus M=-4 is rejected, M=2 is valid.

For 1=2, g:(x)=0.

DC = 3(2) = 2 1+2

[x7=2] at [4=2]

$$\frac{1}{2} \int \frac{d^{2}x}{dx} = \min \left(\frac{1}{2} \left(\frac{x}{2} \right) \right) \\
= \min \left(\frac{1}{2} + \frac{y}{2} \right) \\
= \min \left$$

$$\nabla_{\mathbf{x}} \mathbf{g} L(\mathbf{x}, \mathbf{y}) = 2(\mathbf{1} + \mathbf{y}) \mathbf{x} + 6\mathbf{y} = 0$$

$$\mathbf{x} = 3\mathbf{y}$$

$$\mathbf{1} + \mathbf{y}$$

1. x (1+14) 3H

 $\frac{2(1+\mu)x=6\mu}{(1+\mu)x=3\mu}$

1.0

renmin (1+f4)x2 - 6x4 + 1 + 84 1.e min 3x4 - 6x4 + 1+84 1.e min - 3x4 + 1+84 1.e min - 3x4 + 1+84 1.e min - 3x4 + 1+84

 $g(H) = -9H^2 + 1 + 8H$

 $|Dug| = g(\mu) = max.9M+1-H^2$

9. t (49)2=341 H>0

The same of the sa

primed problem => min x2+1

867 (D(-2)(X-4) < 0

= mor - (2241)

Sibte (4-2)(x-4) 60.

Dud problem >> max qutt-rz

8h to (144)x234

= min - (9141-142)

song to (1464) x = 39.

FON X=21 (4=2.

Oval solution => 674

: CTX & bTy.

Thos this very weak duality.

Since cTx = bTy=71 rimal Soll = Doal soll.

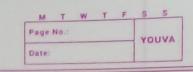


g(4) is a maximization problem.

$$\frac{\sqrt{2}(30)}{\sqrt{2}} = \frac{3(-2) - (9-4)}{9} - \frac{3^{2}(3) - (15)(2)(3)}{3^{4}}$$

$$=-\frac{11}{9} + \frac{7}{9} = -\frac{4}{9}$$

g(v) is a contant maximization problem



3.4.

(a)

min $(x_1-4)^2 + (x_2-4)^2$ Sub to 5- $x_1-x_2 \ge 0$

Here fly = (x1-4)2+ (x2-4)2

Q(x) = - log (-5+x1+x2)

(x)=min (x1-4)2+ (x2-4)2+ (x6-4)2+ (x6-

 $\nabla U(x) = \int 2(x_1 - y) - \epsilon x$ $2(x_2 - y) - \epsilon x$ $x_1 + x_2 - s$

TIZL(XI= FA B)

A = 2 + EK (SUHX2-5)2

 $\beta = 0 \in K = C$ $(x_1 + x_2 - 5)^2$

 $D = 2 + E_K$ $(x_1 + x_2 - 5)^2$

Page No.:

Page No.:

VOUVA

Penalts fred? !-

$$\nabla L(x) = \left[2(x_1 - 4) + 2(x(5 - x_1 - x_2)) \right]$$

$$2(x_2 - 4) - 2(x(5 - x_1 - x_2))$$

$$G = \begin{bmatrix} 2.5 & 0 & -4 & 0 \\ 0 & 2.8 & 0 & -4 \\ -1 & 0 & 2.8 & 0 \end{bmatrix} \qquad P = \begin{bmatrix} 1 - 1 & 2 \\ -1 & 0 & 2.8 \\ -1 & 0 & 2.$$