1. SIMPLEX METHOD

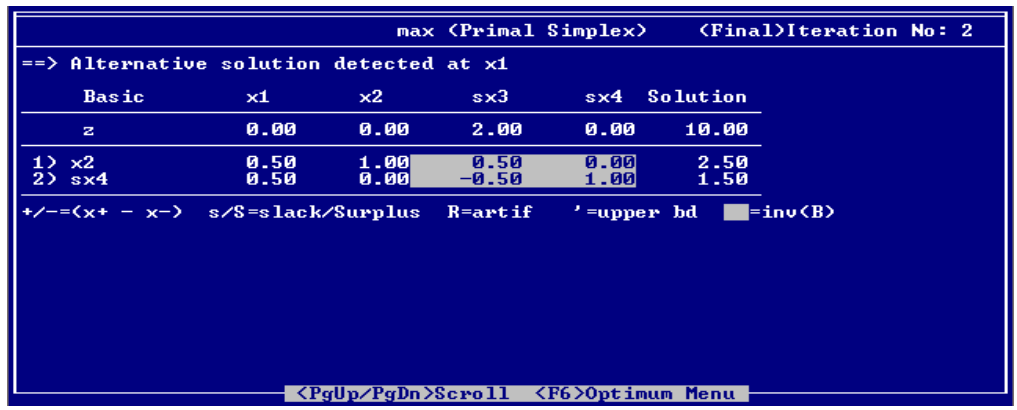
(i). Feasible Solution –

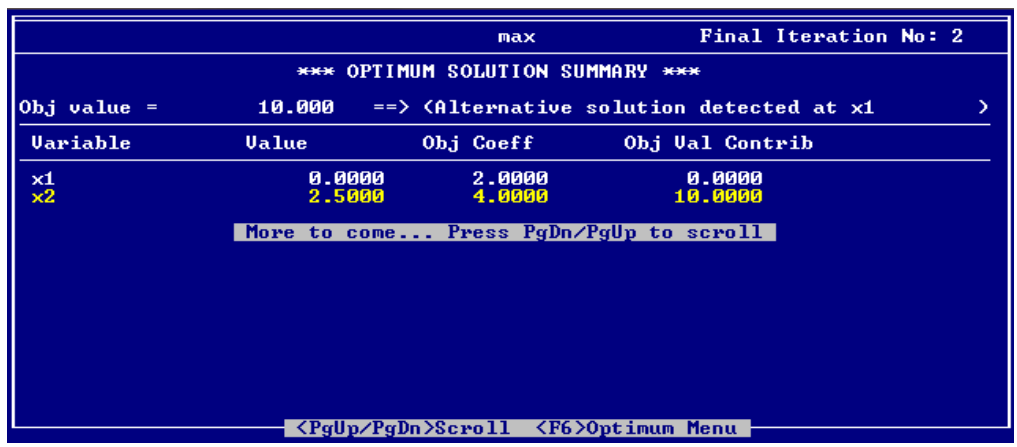
Max. $z = 2x_1 + 4x_2$

Subjected to

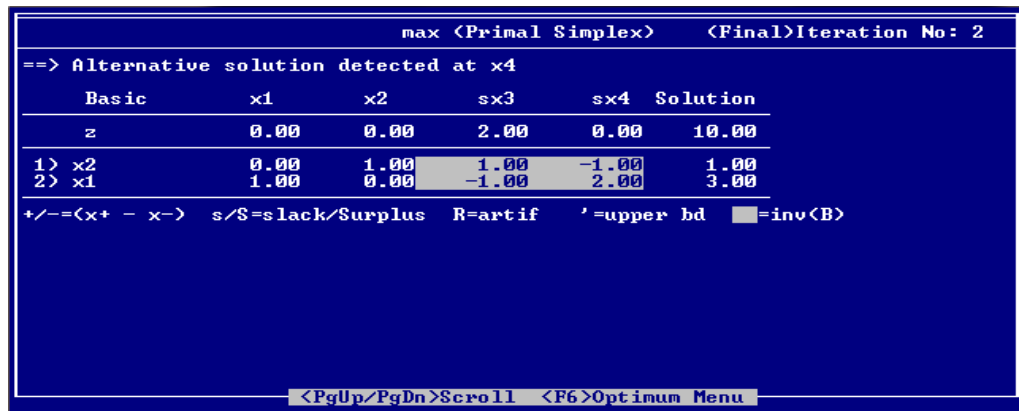
$x_1 + 4x_2 <= 5$
$x_1 + x_2 <= 4$
$x_1, x_2 >= 0$

Final Iteration –





(ii). Alternative Solution –



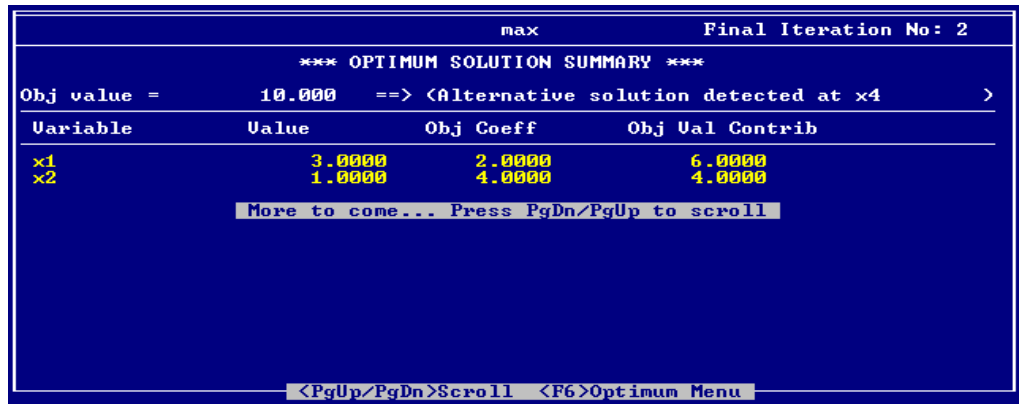
max (Primal Simplex) (Final)Iteration No: 2

==> Alternative solution detected at x4

	Basic	x1	x2	sx3	sx4	Solution
	z	0.00	0.00	2.00	0.00	10.00
1)	x2	0.00	1.00	1.00	-1.00	1.00
2)	x1	1.00	0.00	-1.00	2.00	3.00

+/-=(x+ - x-) s/S=slack/Surplus R=artif '=upper bd ▒▒=inv(B)

<PgUp/PgDn>Scroll <F6>Optimum Menu



max Final Iteration No: 2

*** OPTIMUM SOLUTION SUMMARY ***

Obj value = 10.000 ==> (Alternative solution detected at x4)

Variable	Value	Obj Coeff	Obj Val Contrib
x1	3.0000	2.0000	6.0000
x2	1.0000	4.0000	4.0000

More to come... Press PgDn/PgUp to scroll

<PgUp/PgDn>Scroll <F6>Optimum Menu

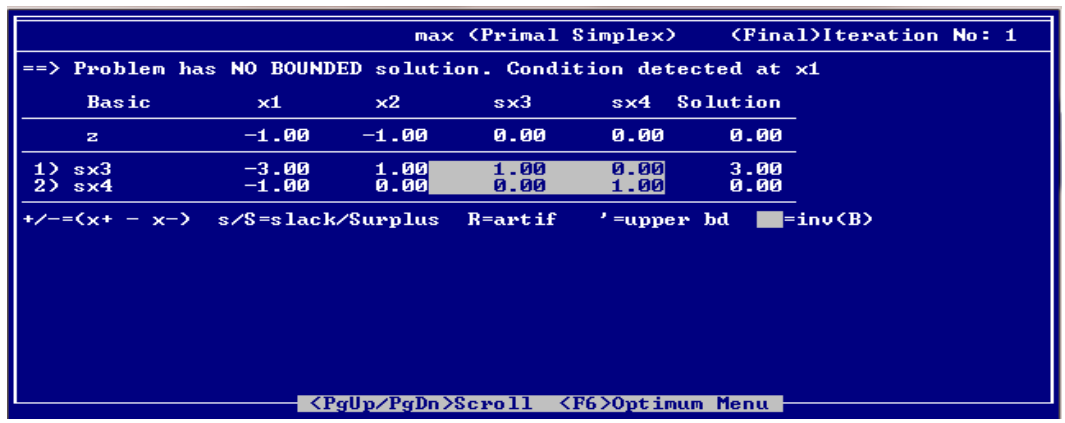
(iii). Unbounded Solution –

Max. $z = x_1 + x_2$

Subjected to

$x_1 - x_2 <= 0$
$-3x_1 + x_2 <= 3$
$x_1, x_2 >= 0$

Final Iteration –



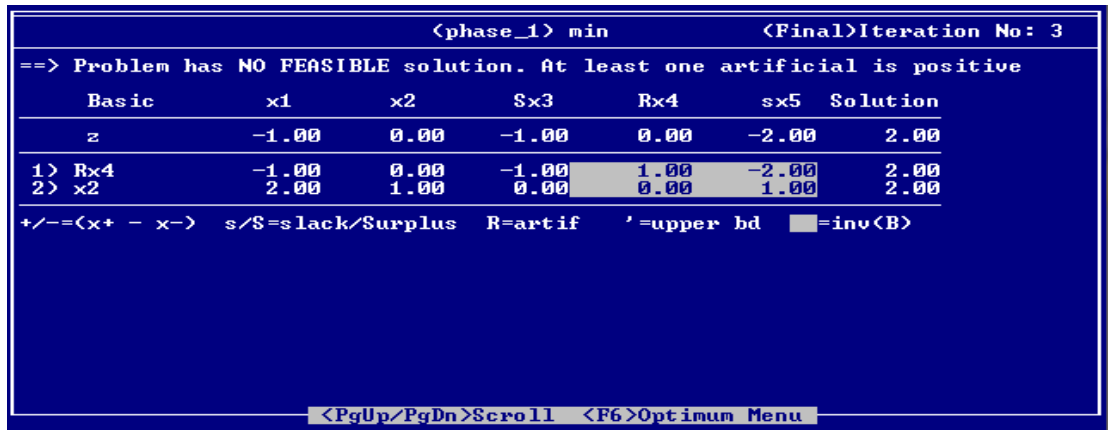
(iv). Infeasible Solution – This case cannot be achieved in the case where the constraints are all(<=).

Max. $z = 2x_1 + 5x_2$

Subjected to

$3x_1 + 2x_2 >= 6$
$2x_1 + x_2 <= 2$
$x_1, x_2 >= 0$

Final Iteration –



2. BIG-M METHOD

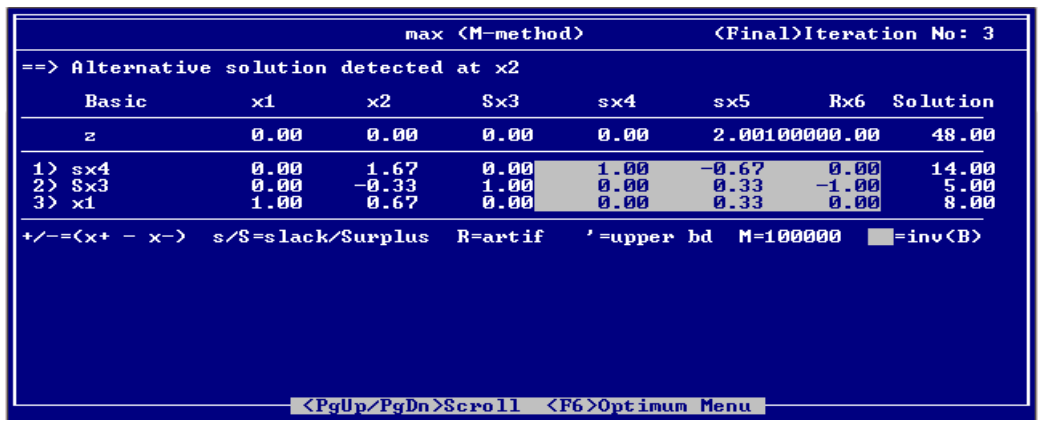
(i). Feasible Solution –

Max. $z = 6x_1 + 4x_2$

Subjected to

$2x_1 + 3x_2 <= 30$
$3x_1 + 2x_2 <= 24$
$x_1 + x_2 >= 3$
$x_1, x_2 >= 0$

Final Iteration –



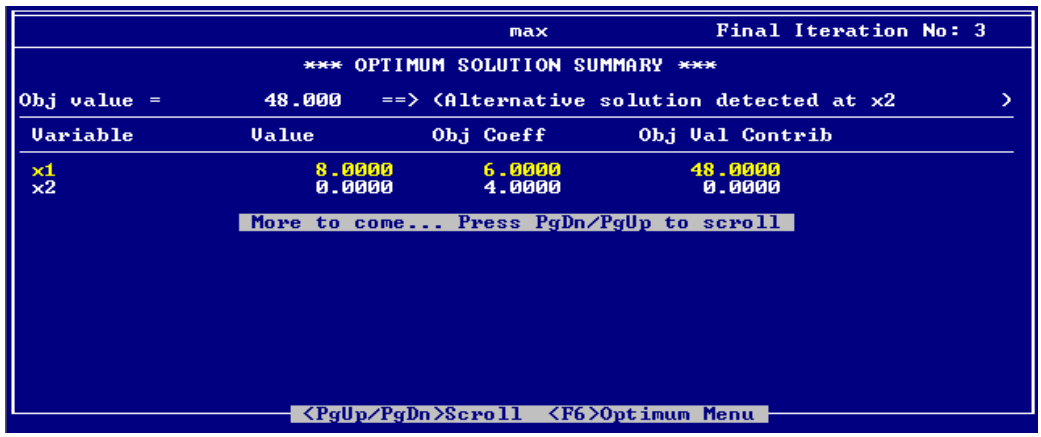
max (M-method) (Final)Iteration No: 3

==> Alternative solution detected at x2

Basic	x1	x2	Sx3	sx4	sx5	Rx6	Solution
z	0.00	0.00	0.00	0.00	2.00100000.00		48.00
1) sx4	0.00	1.67	0.00	1.00	-0.67	0.00	14.00
2) Sx3	0.00	-0.33	1.00	0.00	0.33	-1.00	5.00
3) x1	1.00	0.67	0.00	0.00	0.33	0.00	8.00

+/-=(x+ - x-) s/S=slack/Surplus R=artif '=upper bd M=100000 =inv(B)

<PgUp/PgDn>Scroll <F6>Optimum Menu



max Final Iteration No: 3

*** OPTIMUM SOLUTION SUMMARY ***

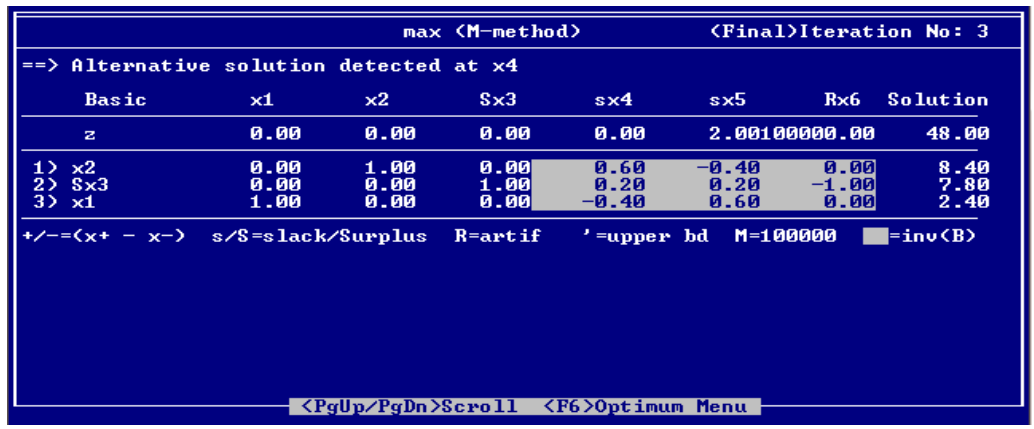
Obj value = 48.000 ==> (Alternative solution detected at x2)

Variable	Value	Obj Coeff	Obj Val Contrib
x1	8.0000	6.0000	48.0000
x2	0.0000	4.0000	0.0000

More to come... Press PgDn/PgUp to scroll

<PgUp/PgDn>Scroll <F6>Optimum Menu

(ii). Alternative Solution –



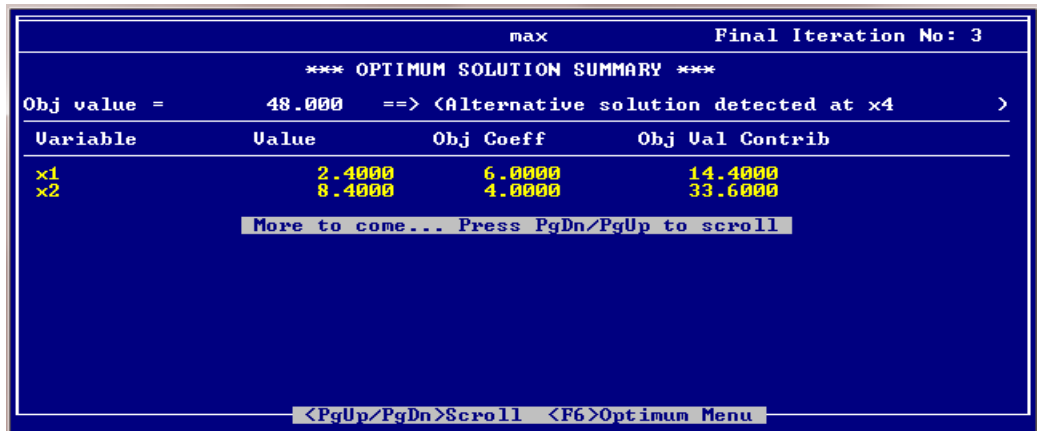
max (M-method) (Final)Iteration No: 3

==> Alternative solution detected at x4

Basic	x1	x2	Sx3	sx4	sx5	Rx6	Solution
z	0.00	0.00	0.00	0.00	2.00100000	0.00	48.00
1) x2	0.00	1.00	0.00	0.60	-0.40	0.00	8.40
2) Sx3	0.00	0.00	1.00	0.20	0.20	-1.00	7.80
3) x1	1.00	0.00	0.00	-0.40	0.60	0.00	2.40

+/-=(x+ - x-) s/S=slack/Surplus R=artif '=upper bd M=100000 =inv(B)

<PgUp/PgDn>Scroll <F6>Optimum Menu



max Final Iteration No: 3

*** OPTIMUM SOLUTION SUMMARY ***

Obj value = 48.000 ==> (Alternative solution detected at x4)

Variable	Value	Obj Coeff	Obj Val Contrib
x1	2.4000	6.0000	14.4000
x2	8.4000	4.0000	33.6000

More to come... Press PgDn/PgUp to scroll

<PgUp/PgDn>Scroll <F6>Optimum Menu

(iii). Unbounded Solution –

Max. $z = 6x_1 + x_2$

Subjected to

$2x_1 + x_2 >= 3$
$-x_1 + x_2 >= 0$
$x_1, x_2 >= 0$

Final Iteration –

max <M-method> <Final>Iteration No: 3

==> Problem has NO BOUNDED solution. Condition detected at x3

Basic	x1	x2	Sx3	Sx4	Rx5	Rx6	Solution
z	0.00	0.00	-2.34	1.34100002.34	99998.66		7.00
1> x1	1.00	0.00	-0.33	0.33	0.33	-0.33	1.00
2> x2	0.00	1.00	-0.33	-0.67	0.33	0.67	1.00

+/-=<x+ - x-> s/S=slack/Surplus R=artif '=upper bd M=100000 =inv<B>

<PgUp/PgDn>Scroll <F6>Optimum Menu

max Final Iteration No: 3

*** OPTIMUM SOLUTION SUMMARY ***
Problem has NO BOUNDED solution. Condition detected at x3

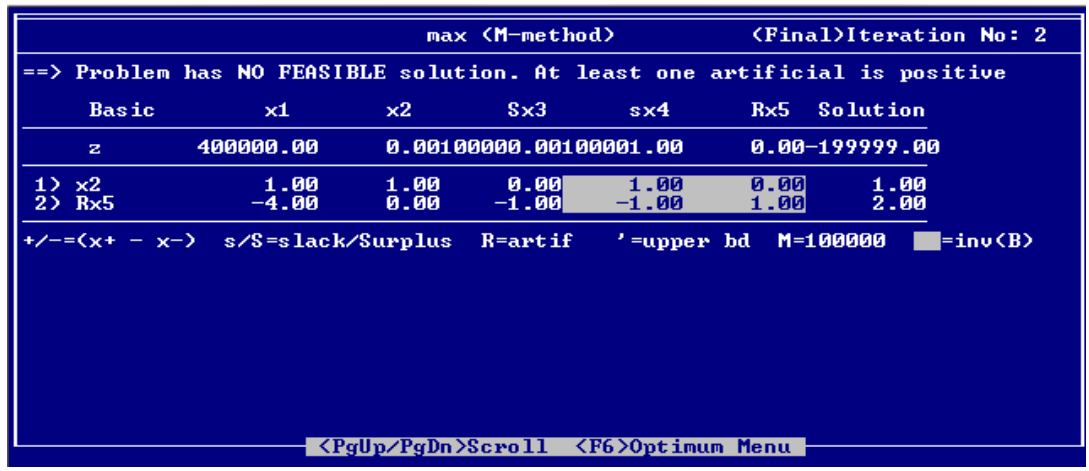
(iv). Infeasible Solution –

Max. $z = x_1 + x_2$

Subjected to

$x_1 + x_2 <= 1$
$-3x_1 + x_2 >= 3$
$x_1, x_2 >= 0$

Final Iteration –



3. DUAL SIMPLEX METHOD

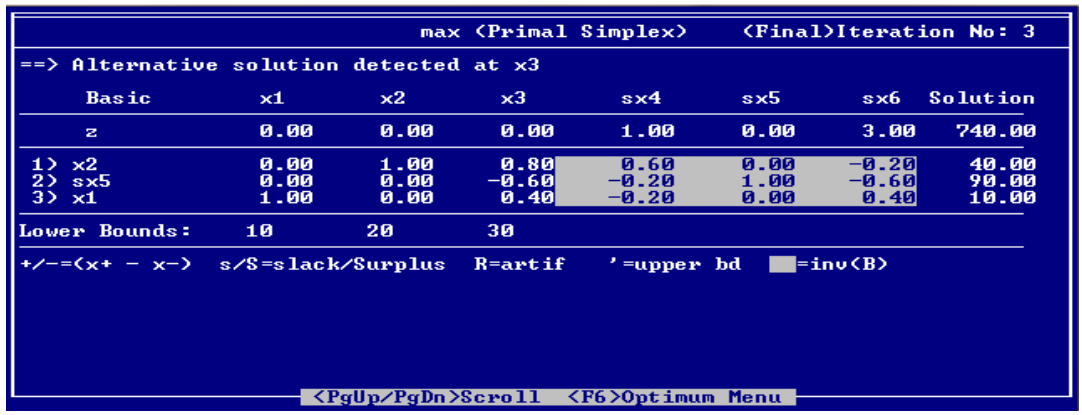
(i). Max problem –

Max. $z = 10x_1 + 5x_2 + 8x_3$

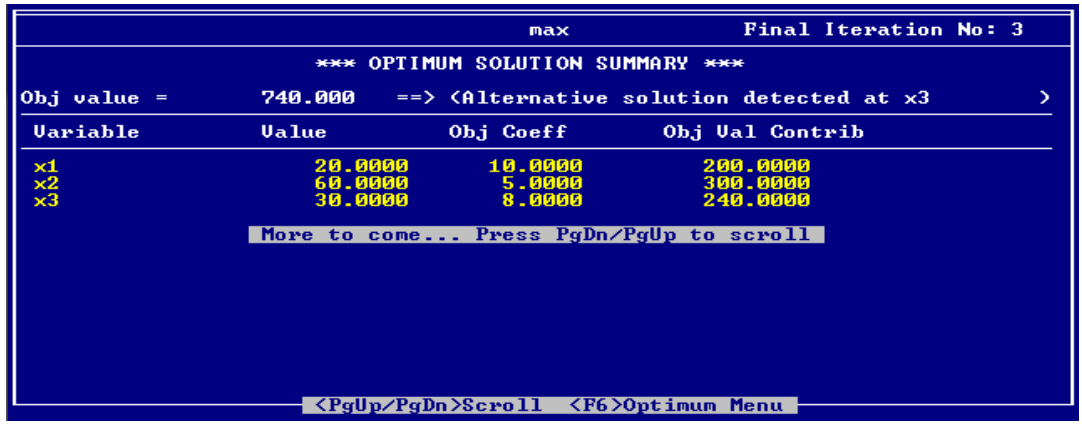
Subjected to

$x_1 + 2x_2 + 2x_3 <= 200$
$2x_1 + x_2 + x_3 <= 220$
$3x_1 + x_2 + 2x_3 <= 180$
$x_1 >= 10, x_2 >= 20, x_3 >= 30$
$x_1, x_2, x_3 >= 0$

Final Iteration –

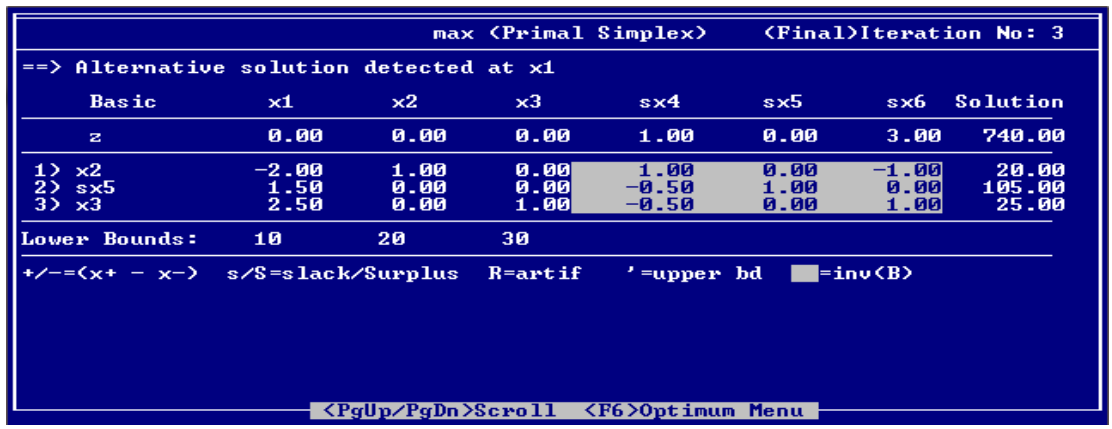


```
                                  max (Primal Simplex)     (Final)Iteration No: 3
==> Alternative solution detected at x3
     Basic          x1          x2          x3          sx4         sx5         sx6   Solution
     z            0.00        0.00        0.00         1.00        0.00        3.00     740.00
 1) x2            0.00        1.00        0.80         0.60        0.00       -0.20      40.00
 2) sx5           0.00        0.00       -0.60        -0.20        1.00       -0.60      90.00
 3) x1            1.00        0.00        0.40        -0.20        0.00        0.40      10.00
Lower Bounds:     10          20          30
+/-=(x+ - x-)  s/S=slack/Surplus  R=artif   '=upper bd  ■=inv(B)
                    <PgUp/PgDn>Scroll  <F6>Optimum Menu
```



```
                                  max              Final Iteration No: 3
                      *** OPTIMUM SOLUTION SUMMARY ***
Obj value =       740.000    ==> (Alternative solution detected at x3         )
 Variable          Value          Obj Coeff        Obj Val Contrib
 x1              20.0000            10.0000           200.0000
 x2              60.0000             5.0000           300.0000
 x3              30.0000             8.0000           240.0000
            More to come... Press PgDn/PgUp to scroll
                    <PgUp/PgDn>Scroll  <F6>Optimum Menu
```

Alternative Solution –



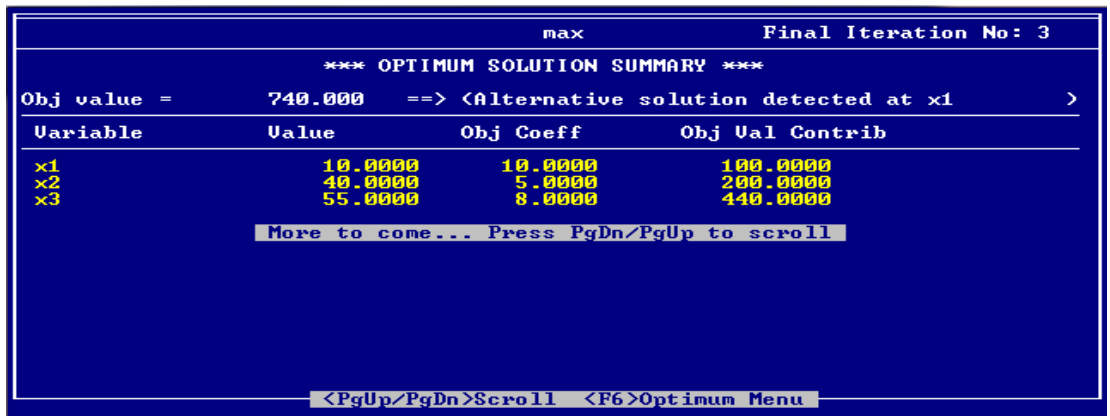
max (Primal Simplex) (Final)Iteration No: 3

==> Alternative solution detected at x1

	Basic	x1	x2	x3	sx4	sx5	sx6	Solution
	z	0.00	0.00	0.00	1.00	0.00	3.00	740.00
1)	x2	-2.00	1.00	0.00	1.00	0.00	-1.00	20.00
2)	sx5	1.50	0.00	0.00	-0.50	1.00	0.00	105.00
3)	x3	2.50	0.00	1.00	-0.50	0.00	1.00	25.00
Lower Bounds:		10	20	30				

+/-=(x+ - x-) s/S=slack/Surplus R=artif '=upper bd =inv(B)

<PgUp/PgDn>Scroll <F6>Optimum Menu



max Final Iteration No: 3

*** OPTIMUM SOLUTION SUMMARY ***

Obj value = 740.000 ==> (Alternative solution detected at x1)

Variable	Value	Obj Coeff	Obj Val Contrib
x1	10.0000	10.0000	100.0000
x2	40.0000	5.0000	200.0000
x3	55.0000	8.0000	440.0000

More to come... Press PgDn/PgUp to scroll

<PgUp/PgDn>Scroll <F6>Optimum Menu

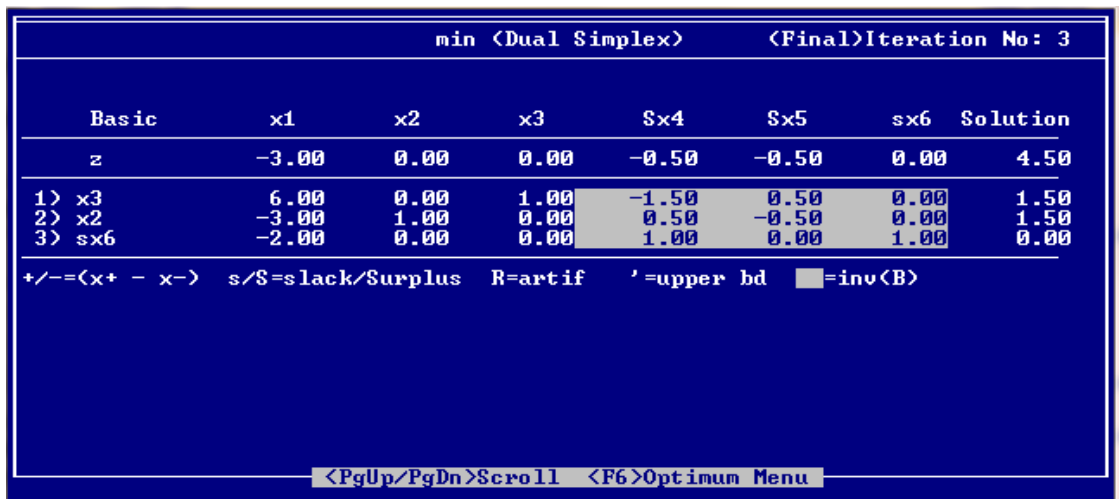
(ii). Min problem –

Min. $z = 3x_1 + 2x_2 + x_3$

Subjected to

$3x_1 + x_2 + x_3 >= 3$
$-3x_1 + 3x_2 + x_3 >= 6$
$x_1 + x_2 + x_3 <= 3$
$x_1, x_2, x_3 >= 0$

Final Iteration –

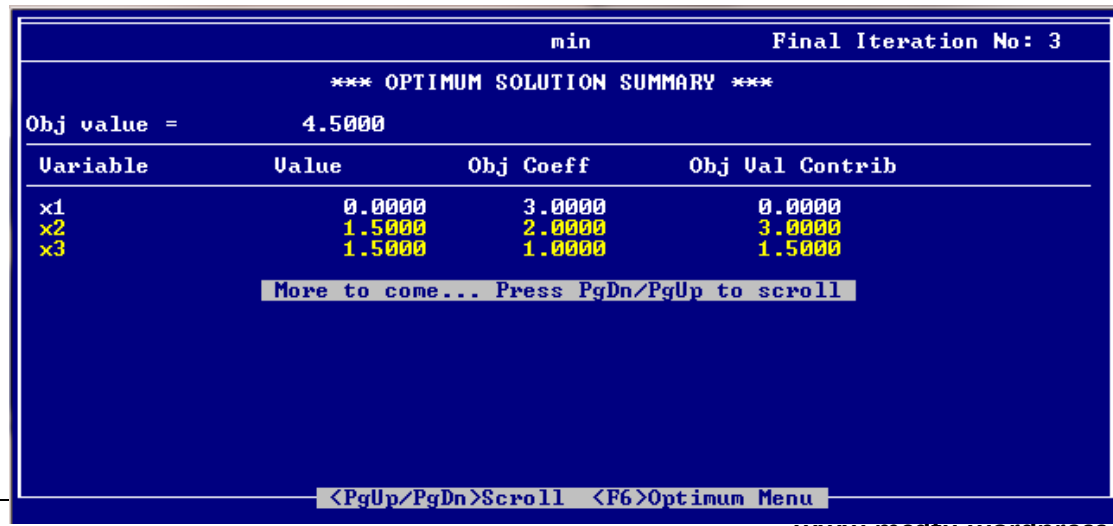


min (Dual Simplex) (Final)Iteration No: 3

Basic	x1	x2	x3	Sx4	Sx5	sx6	Solution
z	-3.00	0.00	0.00	-0.50	-0.50	0.00	4.50
1) x3	6.00	0.00	1.00	-1.50	0.50	0.00	1.50
2) x2	-3.00	1.00	0.00	0.50	-0.50	0.00	1.50
3) sx6	-2.00	0.00	0.00	1.00	0.00	1.00	0.00

+/-=(x+ - x-) s/S=slack/Surplus R=artif '=upper bd =inv(B)

<PgUp/PgDn>Scroll <F6>Optimum Menu



min Final Iteration No: 3

*** OPTIMUM SOLUTION SUMMARY ***

Obj value = 4.5000

Variable	Value	Obj Coeff	Obj Val Contrib
x1	0.0000	3.0000	0.0000
x2	1.5000	2.0000	3.0000
x3	1.5000	1.0000	1.5000

More to come... Press PgDn/PgUp to scroll

<PgUp/PgDn>Scroll <F6>Optimum Menu

4. SENSITIVITY ANALYSIS

(i). Max. $z = 3x_1 + 2x_2 + 5x_3$

Subjected to

$x_1 + 2x_2 + x_3 <= 430$
$3x_1 + 2x_3 <= 460$
$x_1 + 4x_2 <= 420$
$x_1, x_2, x_3 >= 0$

max Final Iteration No: 3

***** SENSITIVITY ANALYSIS *****
Obj value = 1350.0000
Obj Coeffs -- Single Changes:

Variable	Current Coeff	Min Coeff	Max Coeff	Reduced Cost
x1	3.0000	-infinity	7.0000	4.0000
x2	2.0000	0.0000	10.0000	0.0000
x3	5.0000	2.3333	infinity	0.0000

More to come... Press PgDn/PgUp to scroll

<PgUp/PgDn>Scroll <F6>Optimum Menu

max Final Iteration No: 3

***** SENSITIVITY ANALYSIS *****
Obj value = 1350.0000
Righthand Side -- Single Changes:

Constraint	Current RHS	Min RHS	Max RHS	Dual Price
1 (<)	430.0000	230.0000	440.0000	1.0000
2 (<)	460.0000	440.0000	860.0000	2.0000
3 (<)	420.0000	400.0000	infinity	0.0000

More to come... Press PgDn/PgUp to scroll

<PgUp/PgDn>Scroll <F6>Optimum Menu

(ii). Max. $z = 10x_1 + 12x_2 - 2x_3$

Subjected to

$x_1 + 2x_2 - x_3 <= 320$
$3x_1 + x_2 <= 350$
$x_3 <= 10$
$x_1, x_2, x_3 >= 0$

max Final Iteration No: 4

***** SENSITIVITY ANALYSIS *****
Obj value = 2256.0000
Obj Coeffs -- Single Changes:

Variable	Current Coeff	Min Coeff	Max Coeff	Reduced Cost
x1	10.0000	6.0000	26.0000	0.0000
x2	12.0000	6.6667	20.0000	0.0000
x3	-2.0000	-5.2000	infinity	0.0000

More to come... Press PgDn/PgUp to scroll

<PgUp/PgDn>Scroll <F6>Optimum Menu

max Final Iteration No: 4

***** SENSITIVITY ANALYSIS *****
Obj value = 2256.0000
Righthand Side -- Single Changes:

Constraint	Current RHS	Min RHS	Max RHS	Dual Price
1 (<)	320.0000	106.6667	690.0000	5.2000
2 (<)	350.0000	165.0000	990.0000	1.6000
3 (<)	10.0000	0.0000	380.0000	3.2000

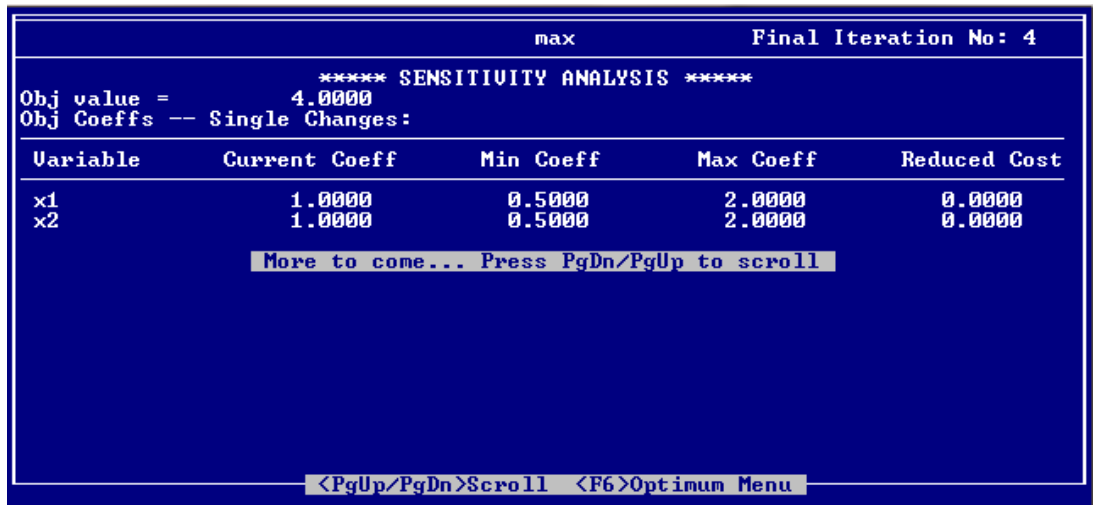
More to come... Press PgDn/PgUp to scroll

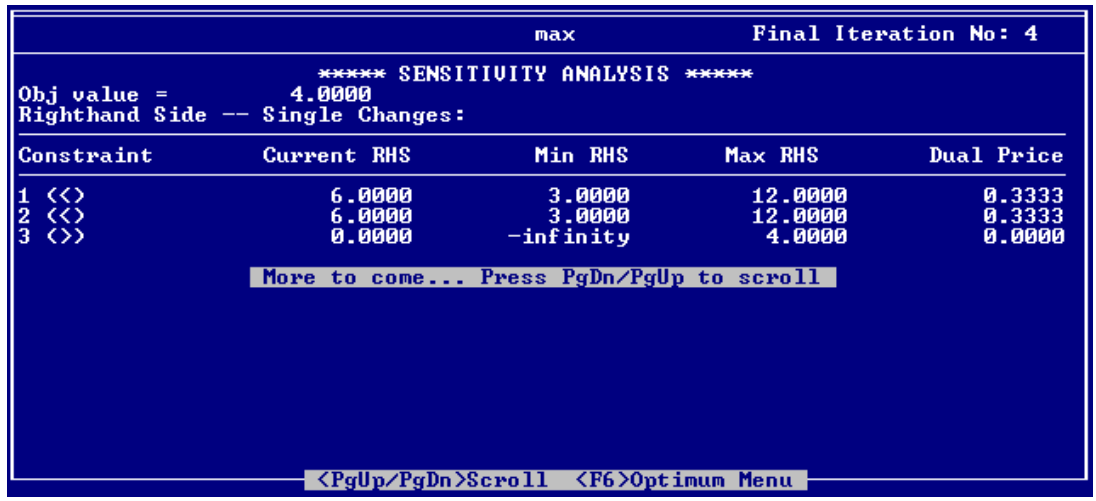
<PgUp/PgDn>Scroll <F6>Optimum Menu

(iii). Max. $z = x_1 + x_2$

Subjected to

$2x_1 + x_2 <= 6$
$x_1 + 2x_2 <= 6$
$x_1 + x_2 >= 0$
$x_1, x_2 >= 0$



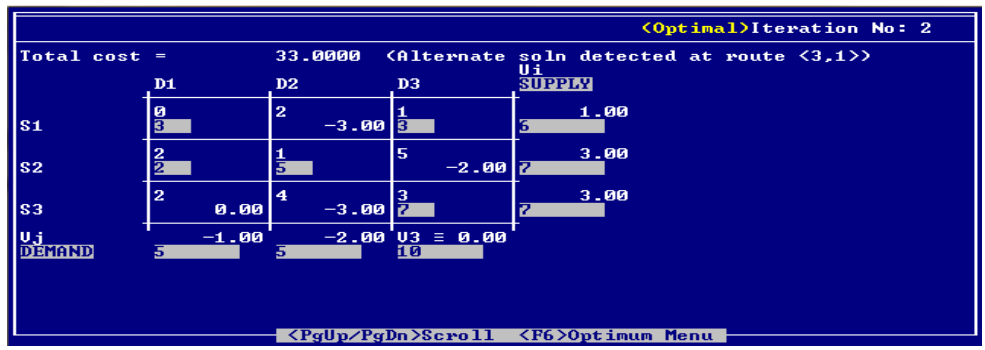


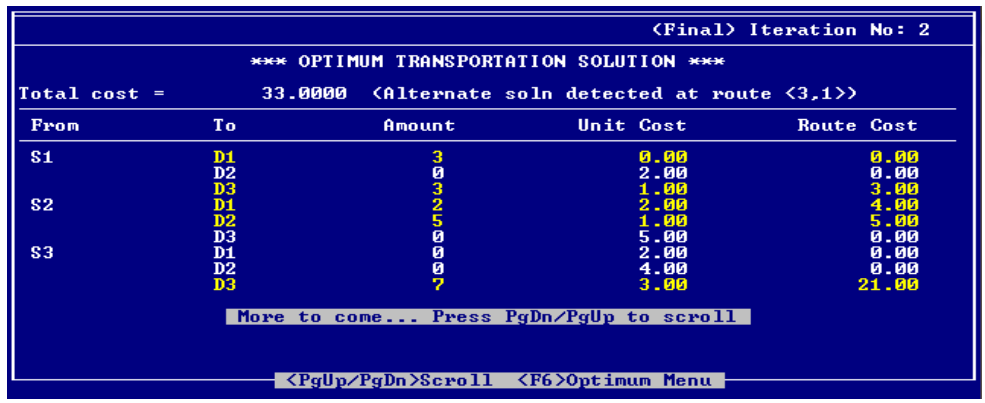
5. TRANSPORTATION PROBLEM

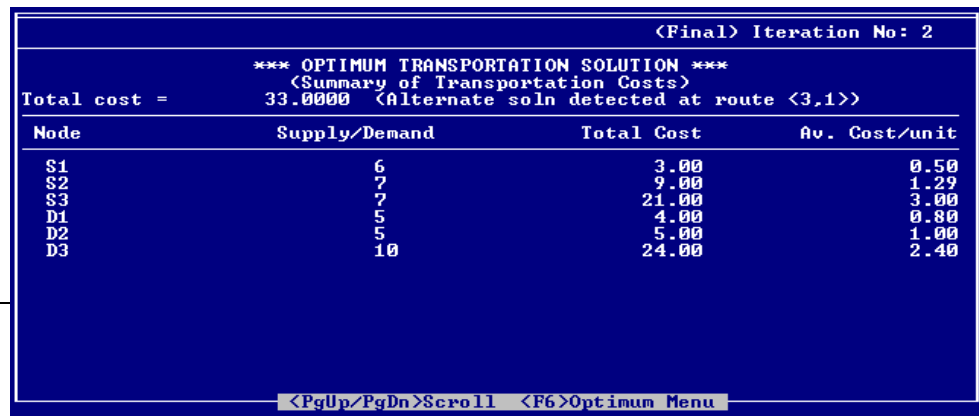
(i).

	D1	D2	D3	Supply
S1	0	2	1	6
S2	2	1	5	7
S3	2	4	3	7
Demand	5	5	10	

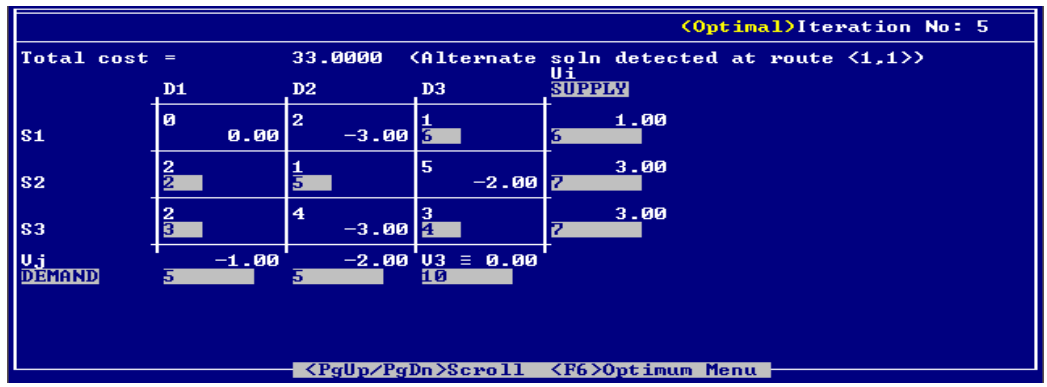
Final Iteration –

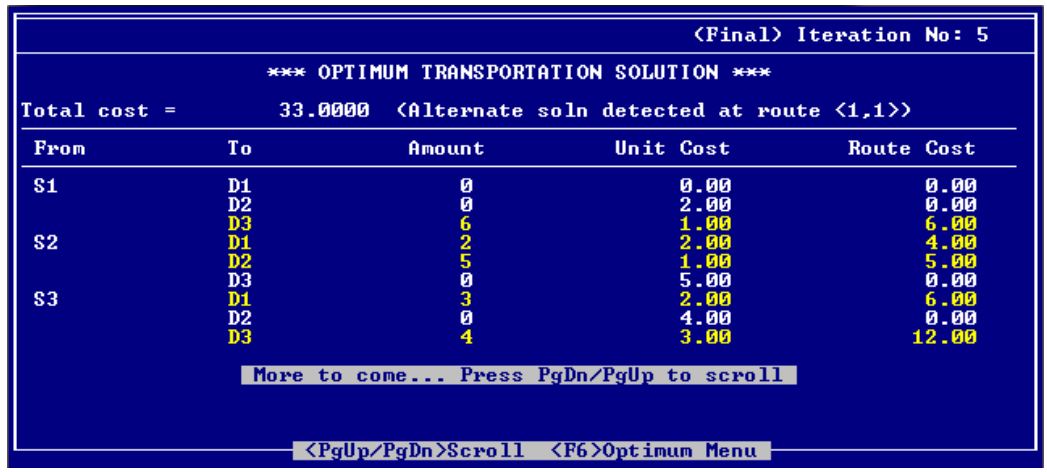


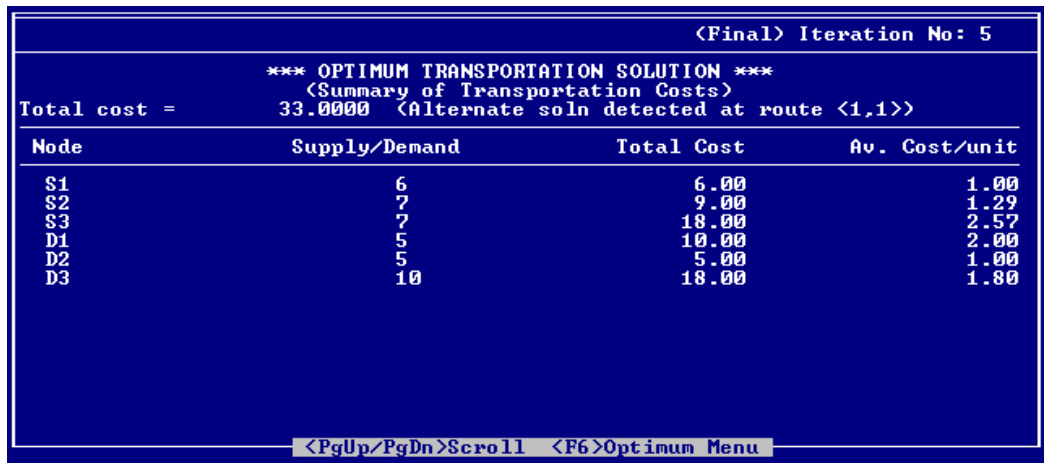




Alternative Solution –



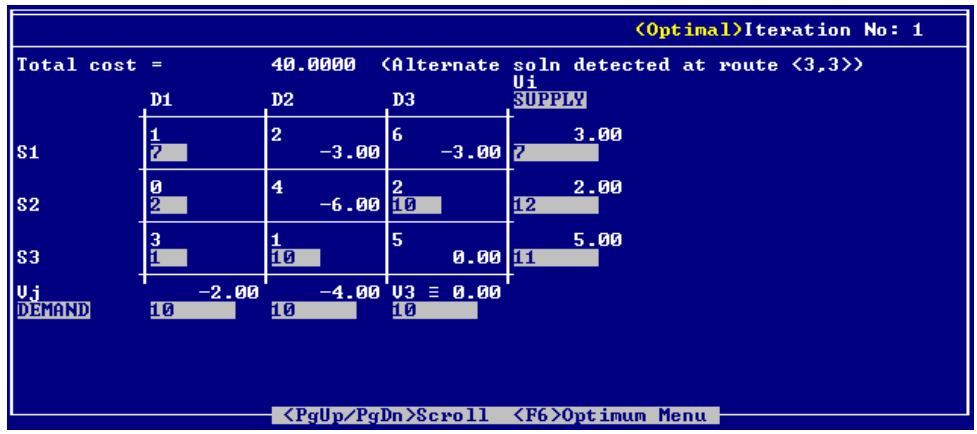


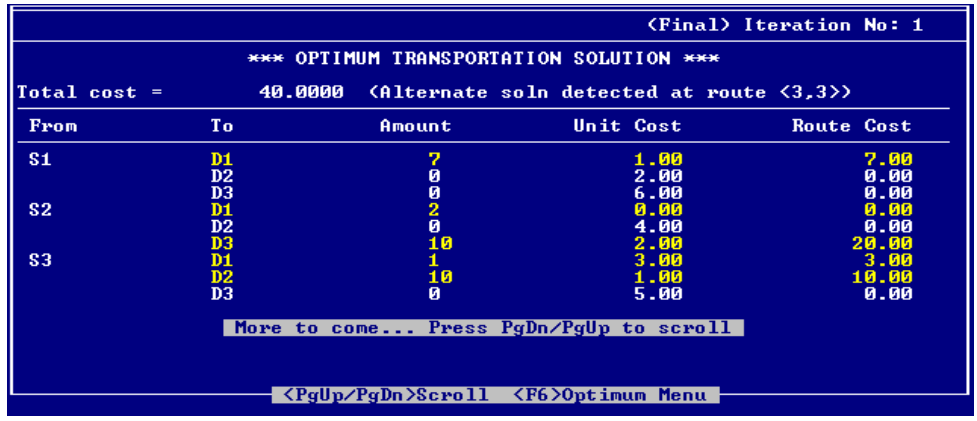


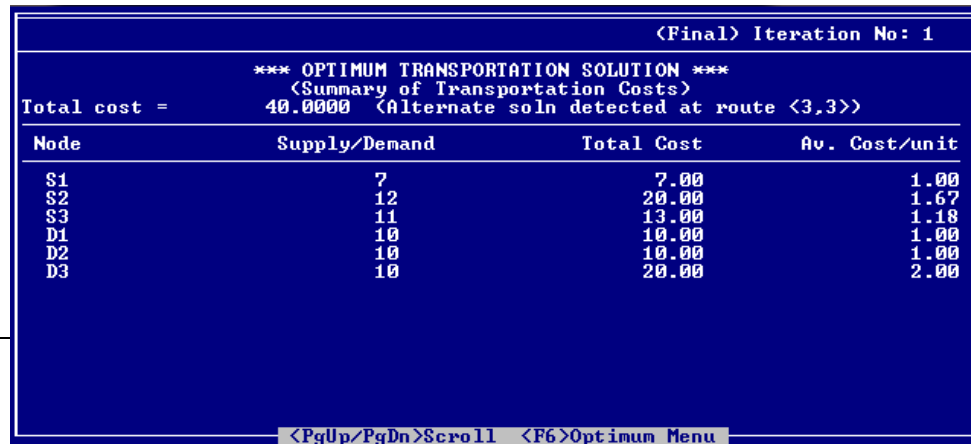
(ii).

	D1	D2	D3	Supply
S1	1	2	6	7
S2	0	4	2	12
S3	3	1	5	11
Demand	10	10	10	

Final Iteration –



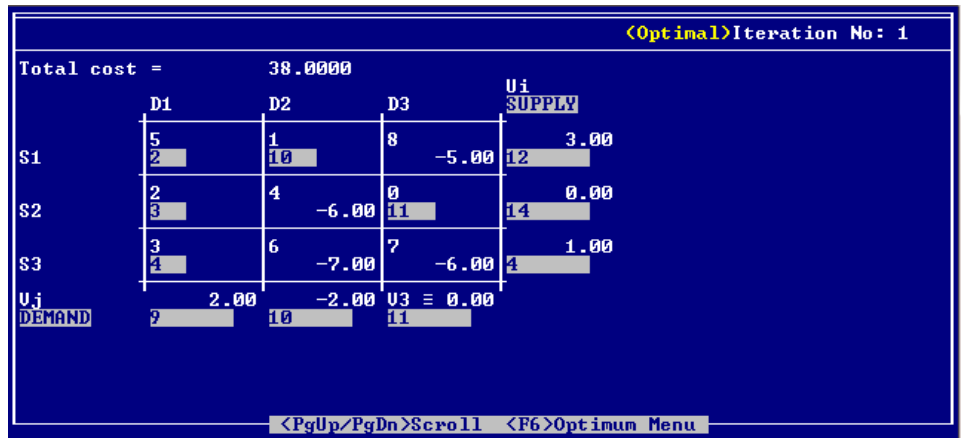


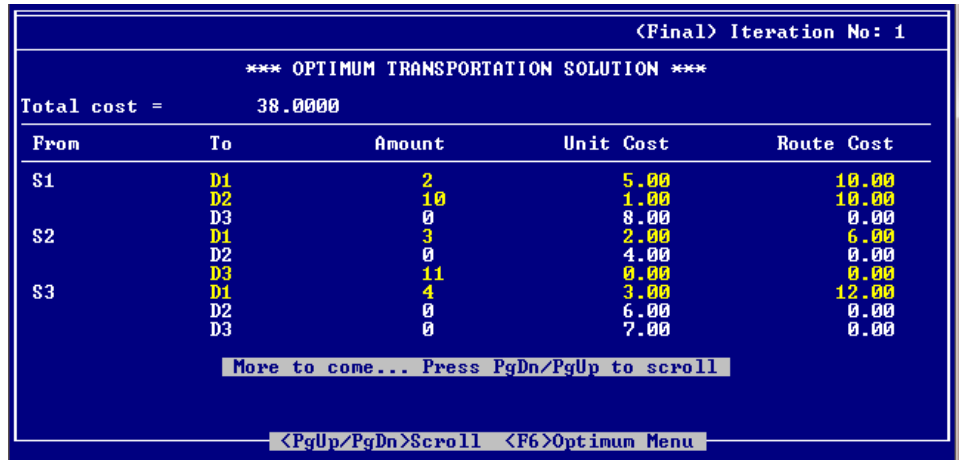


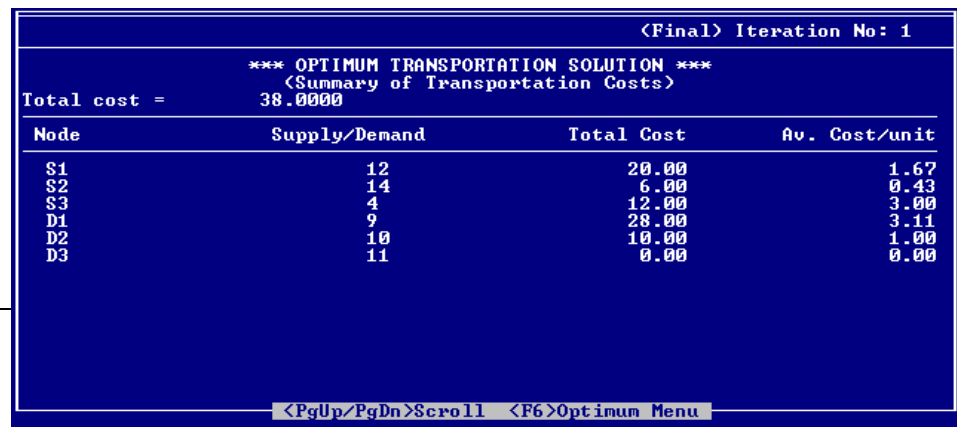
(iii).

	D1	D2	D3	Supply
S1	5	1	8	12
S2	2	4	0	14
S3	3	6	7	4
Demand	9	10	11	

Final Iteration –





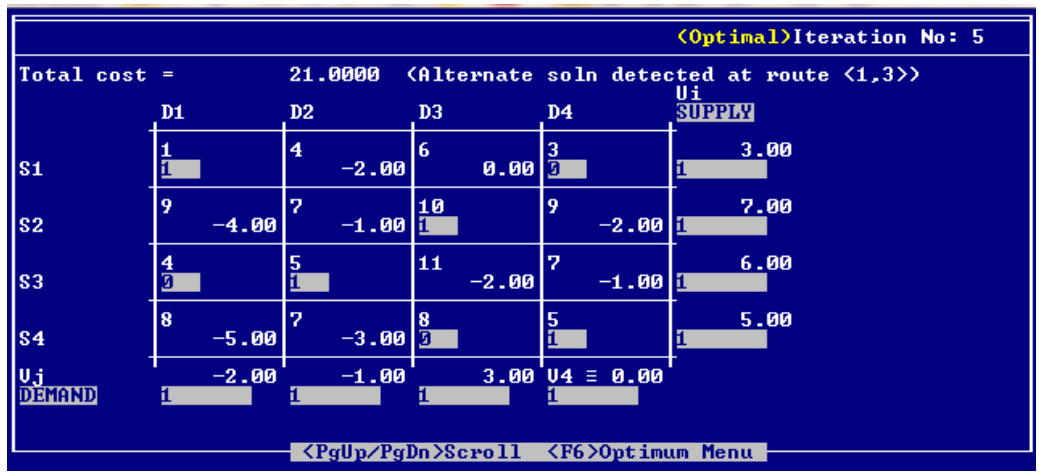


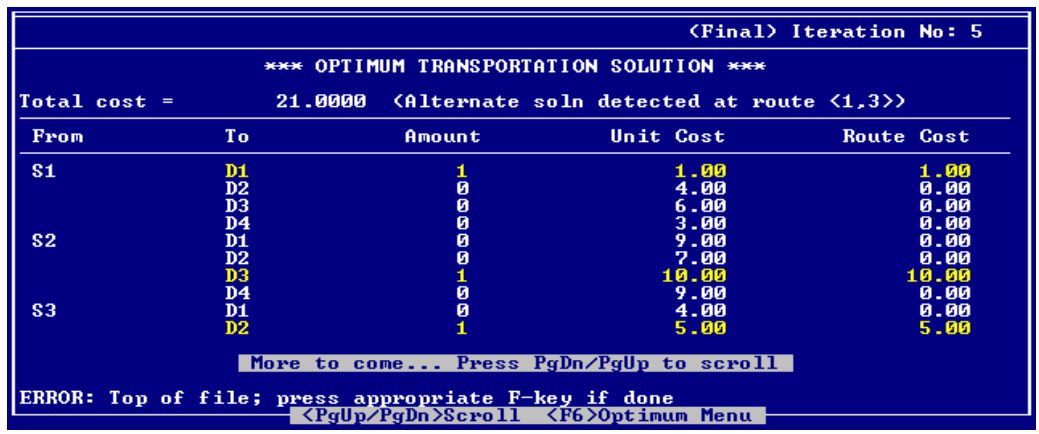
6. ASSIGNMENT PROBLEM

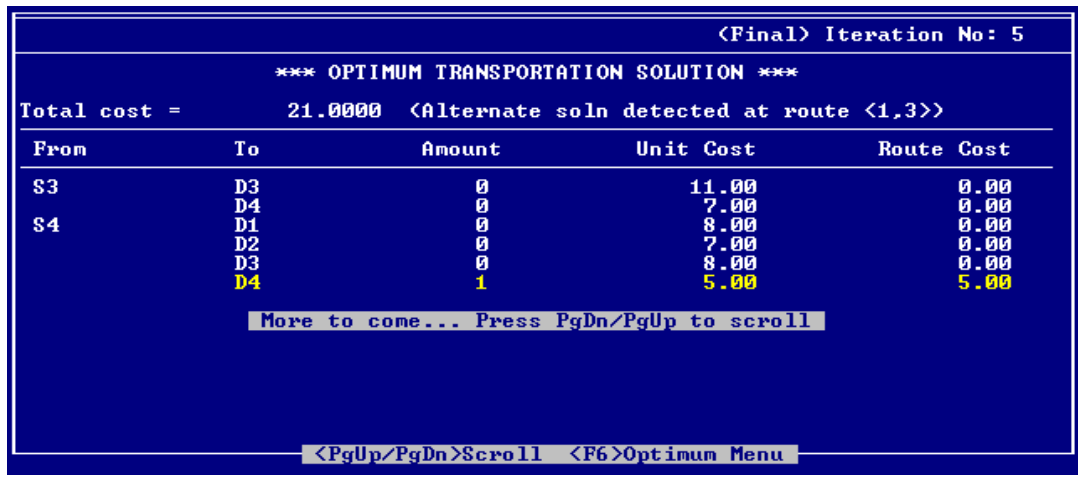
(i).

		JOBS			
		1	**2**	**3**	**4**
OP	**1**	1	4	6	3
ER	**2**	9	7	10	9
AT	**3**	4	5	11	7
OR	**4**	8	7	8	5

Final Iteration –







(Final) Iteration No: 5

*** OPTIMUM TRANSPORTATION SOLUTION ***

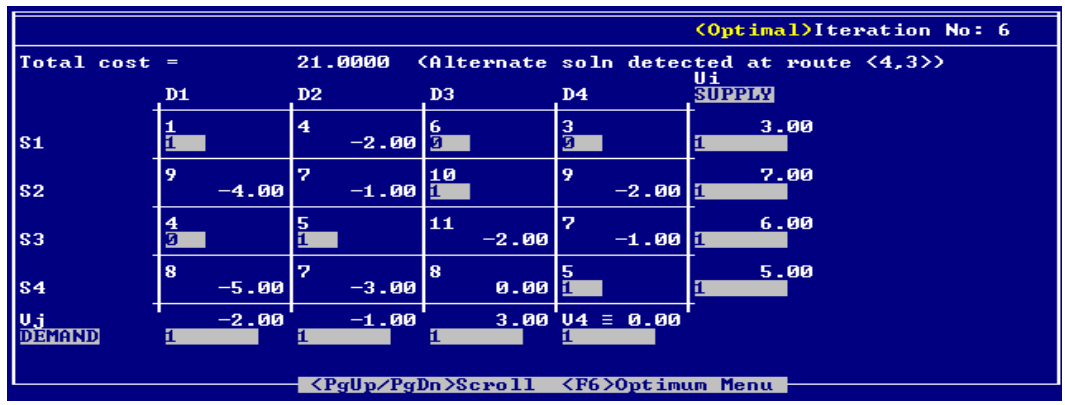
Total cost = 21.0000 (Alternate soln detected at route (1,3))

From	To	Amount	Unit Cost	Route Cost
S3	D3	0	11.00	0.00
	D4	0	7.00	0.00
S4	D1	0	8.00	0.00
	D2	0	7.00	0.00
	D3	0	8.00	0.00
	D4	1	5.00	5.00

More to come... Press PgDn/PgUp to scroll

<PgUp/PgDn>Scroll <F6>Optimum Menu

Alternative Solution –

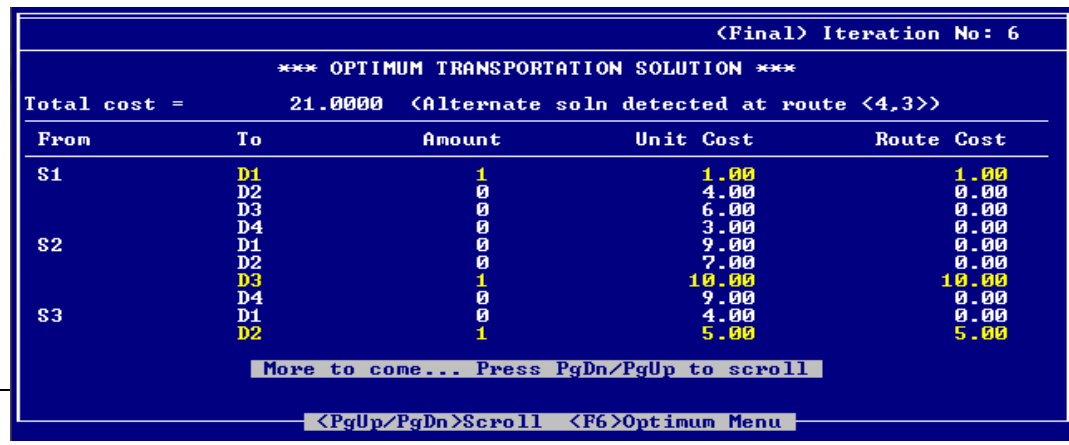


(Optimal)Iteration No: 6

Total cost = 21.0000 (Alternate soln detected at route (4,3))

	D1	D2	D3	D4	Ui
S1	1 [1]	4 -2.00	6 [3]	3 [3]	3.00 [1] SUPPLY
S2	9 -4.00	7 -1.00	10 [1]	9 -2.00	7.00 [1]
S3	4 [2]	5 [1]	11 -2.00	7 -1.00	6.00 [1]
S4	8 -5.00	7 -3.00	8 0.00	5 [1]	5.00 [1]
Vj	-2.00	-1.00	3.00	V4 ≡ 0.00	
DEMAND	[1]	[1]	[1]	[1]	

<PgUp/PgDn>Scroll <F6>Optimum Menu



(Final) Iteration No: 6

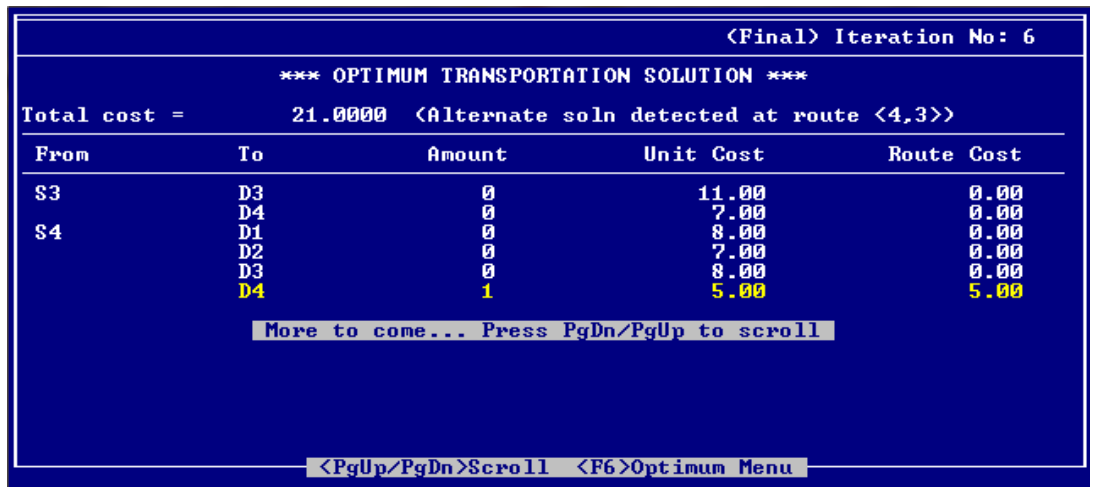
*** OPTIMUM TRANSPORTATION SOLUTION ***

Total cost = 21.0000 (Alternate soln detected at route (4,3))

From	To	Amount	Unit Cost	Route Cost
S1	D1	1	1.00	1.00
	D2	0	4.00	0.00
	D3	0	6.00	0.00
	D4	0	3.00	0.00
S2	D1	0	9.00	0.00
	D2	0	7.00	0.00
	D3	1	10.00	10.00
	D4	0	9.00	0.00
S3	D1	0	4.00	0.00
	D2	1	5.00	5.00

More to come... Press PgDn/PgUp to scroll

<PgUp/PgDn>Scroll <F6>Optimum Menu



(Final) Iteration No: 6

*** OPTIMUM TRANSPORTATION SOLUTION ***

Total cost = 21.0000 (Alternate soln detected at route (4,3))

From	To	Amount	Unit Cost	Route Cost
S3	D3	0	11.00	0.00
	D4	0	7.00	0.00
S4	D1	0	8.00	0.00
	D2	0	7.00	0.00
	D3	0	8.00	0.00
	D4	1	5.00	5.00

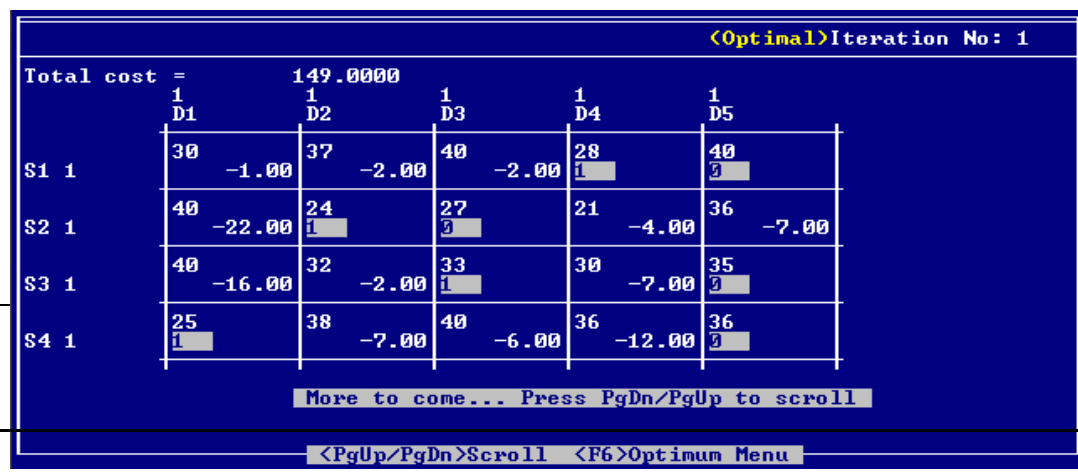
More to come... Press PgDn/PgUp to scroll

<PgUp/PgDn>Scroll <F6>Optimum Menu

(ii).

		JOBS				
		1	**2**	**3**	**4**	**5**
OP	**1**	30	37	40	28	40
ER	**2**	40	24	27	21	36
AT	**3**	40	32	33	30	35
OR	**4**	25	38	40	36	36
S	**5**	29	62	41	34	39

Final Iteration –



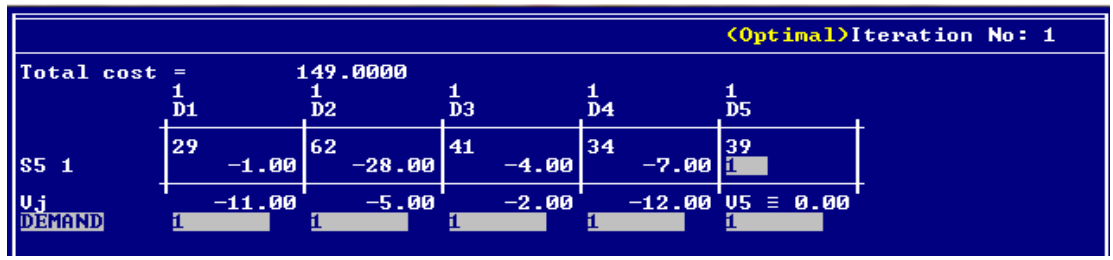
(Optimal)Iteration No: 1

Total cost = 149.0000

	1 D1	1 D2	1 D3	1 D4	1 D5
S1 1	30 −1.00	37 −2.00	40 −2.00	28 1	40 3
S2 1	40 −22.00	24 1	27 3	21 −4.00	36 −7.00
S3 1	40 −16.00	32 −2.00	33 1	30 −7.00	35 3
S4 1	25 1	38 −7.00	40 −6.00	36 −12.00	36 3

More to come... Press PgDn/PgUp to scroll

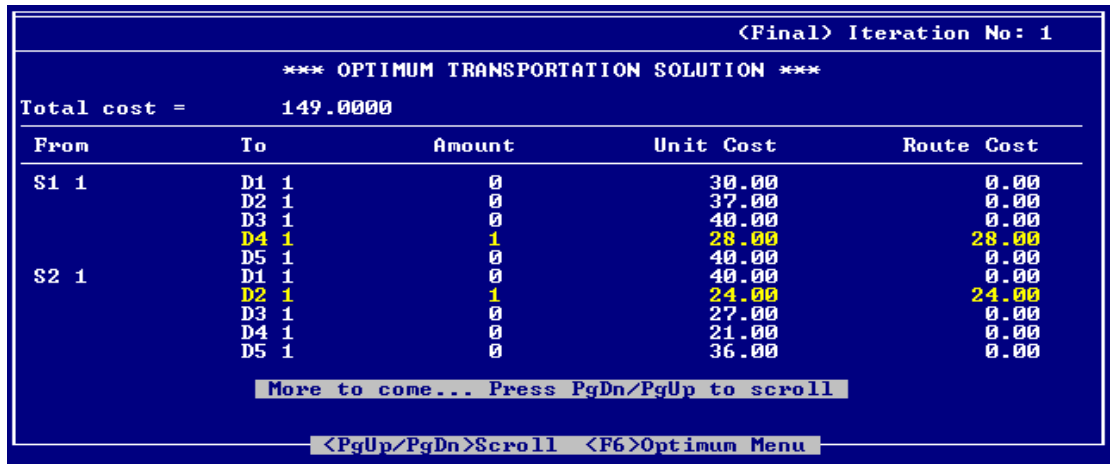
<PgUp/PgDn>Scroll <F6>Optimum Menu



(Optimal)Iteration No: 1

Total cost = 149.0000

	1 D1	1 D2	1 D3	1 D4	1 D5	
S5 1	29 -1.00	62 -28.00	41 -4.00	34 -7.00	39 1	
Uj	-11.00	-5.00	-2.00	-12.00	V5 ≡ 0.00	
DEMAND	1	1	1	1	1	



(Final) Iteration No: 1

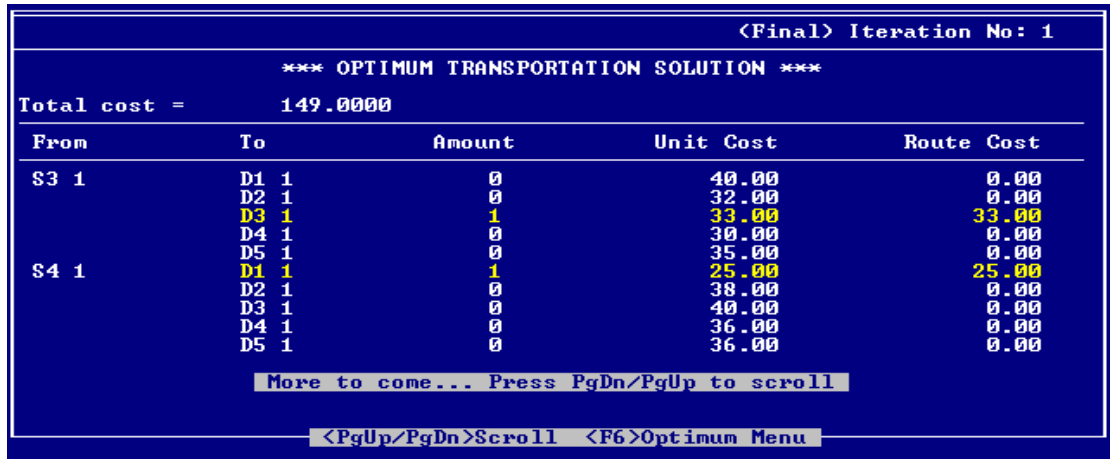
*** OPTIMUM TRANSPORTATION SOLUTION ***

Total cost = 149.0000

From	To	Amount	Unit Cost	Route Cost
S1 1	D1 1	0	30.00	0.00
	D2 1	0	37.00	0.00
	D3 1	0	40.00	0.00
	D4 1	1	28.00	28.00
	D5 1	0	40.00	0.00
S2 1	D1 1	0	40.00	0.00
	D2 1	1	24.00	24.00
	D3 1	0	27.00	0.00
	D4 1	0	21.00	0.00
	D5 1	0	36.00	0.00

More to come... Press PgDn/PgUp to scroll

<PgUp/PgDn>Scroll <F6>Optimum Menu



(Final) Iteration No: 1

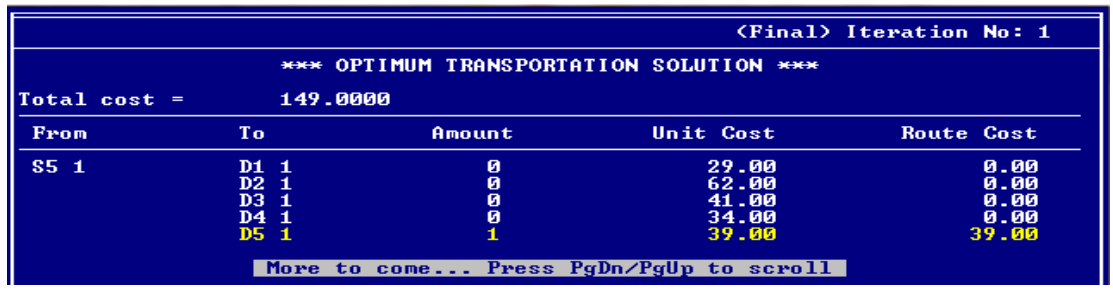
*** OPTIMUM TRANSPORTATION SOLUTION ***

Total cost = 149.0000

From	To	Amount	Unit Cost	Route Cost
S3 1	D1 1	0	40.00	0.00
	D2 1	0	32.00	0.00
	D3 1	1	33.00	33.00
	D4 1	0	30.00	0.00
	D5 1	0	35.00	0.00
S4 1	D1 1	1	25.00	25.00
	D2 1	0	38.00	0.00
	D3 1	0	40.00	0.00
	D4 1	0	36.00	0.00
	D5 1	0	36.00	0.00

More to come... Press PgDn/PgUp to scroll

<PgUp/PgDn>Scroll <F6>Optimum Menu



(Final) Iteration No: 1

*** OPTIMUM TRANSPORTATION SOLUTION ***

Total cost = 149.0000

From	To	Amount	Unit Cost	Route Cost
S5 1	D1 1	0	29.00	0.00
	D2 1	0	62.00	0.00
	D3 1	0	41.00	0.00
	D4 1	0	34.00	0.00
	D5 1	1	39.00	39.00

More to come... Press PgDn/PgUp to scroll

7. INTEGER LINEAR PROGRAMMING PROBLEM

(i).

Max. $z = 7x_1 + 9x_2$

Subjected to

$-x_1 + 3x_2 <= 6$

$7x_1 + x_2 <= 35$

$x_1, x_2 >= 0$

x_1, x_2 are integers.

Final Iteration –

```
                                max                          (Final)Iteration No: 5

     Basic          x1'          x2'          sx3          sx4   Solution
     z             7.00         9.00         0.00         0.00      55.00
 1) sx3            1.00        -3.00         1.00         0.00       1.00
 2) sx4           -7.00        -1.00         0.00         1.00       5.00
Lower Bounds:         0            0
Upper Bounds:         4            3
+/-=(x+ - x-)   s/S=slack/Surplus   R=artif    '=upper bd   ■=inv(B)

                        <PgUp/PgDn>Scroll  <F6>Optimum Menu
```

```
                                max

                      *** OPTIMUM INTEGER SOLUTION ***
Current solution found at node 5 and optimality verified at node 5
Obj value =              55.00000

 Variable           Value          Obj Coeff       Obj Val Contrib
 x1                  4.0000             7.0000              28.0000
 x2                  3.0000             9.0000              27.0000

          More to come... Press PgDn/PgUp to scroll

                        <PgUp/PgDn>Scroll  <F6>Optimum Menu
```

(ii).

Max. $z = x_1 + x_2$

Subjected to

$-x_1 + 2x_2 <= 8$

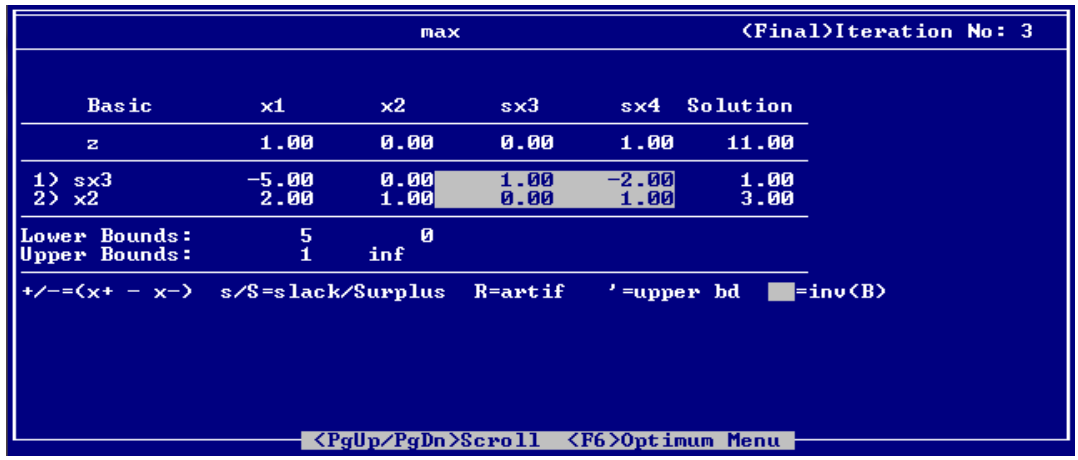
$2x_1 + x_2 <= 16$

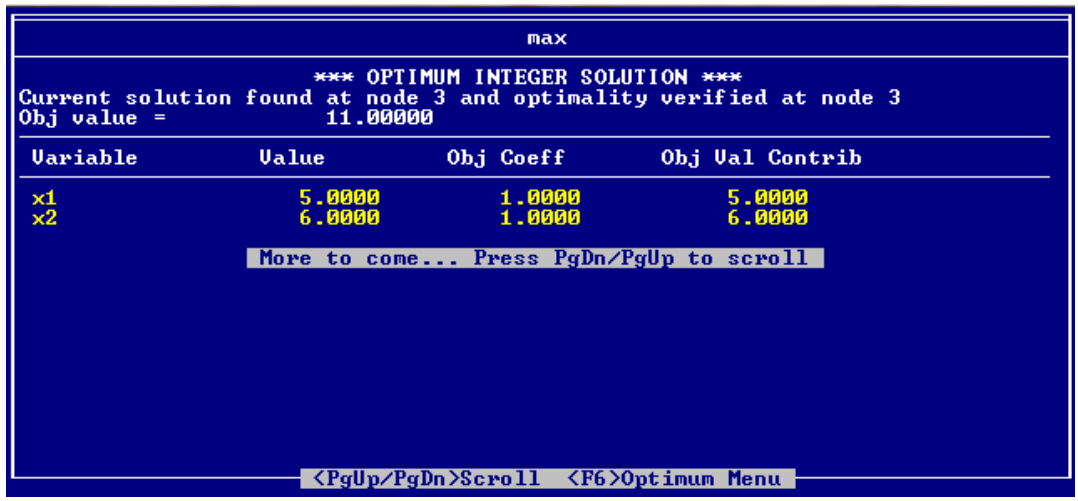
$x_1 <= 6$

$x_1, x_2 >= 0$

x_1 is an integer.

Final Iteration –





8. NETWORK PROBLEM

(i). Crisp –

Activities	1	2	3	4	5	6	7	8
1	-	5.33	7.16	3.5	-	-	-	-
2	-	-	10.66	-	-	-	-	-
3	-	-	-	-	7	-	-	-
4	-	-	-	-	9.5	12	-	-
5	-	-	-	-	-	5	6.33	-
6	-	-	-	-	-	-	-	8
7	-	-	-	-	-	-	-	9.96
8	-	-	-	-	-	-	-	-

CPM Solution –

Size: 8 nodes x 11 activities

*** CPM SOLUTION ***

Project duration = 39.279999

Activity	Duration	Earliest start	Earliest Compl.	Latest start	Latest compl.	Total float	Free float
c 1-2	5.3	0.0	5.3	0.0	5.3	0.0	0.0
1-3	7.2	0.0	7.2	8.8	16.0	8.8	8.8
1-4	3.5	0.0	3.5	10.0	13.5	10.0	0.0
c 2-3	10.7	5.3	16.0	5.3	16.0	0.0	0.0
c 3-5	7.0	16.0	23.0	16.0	23.0	0.0	0.0
4-5	9.5	3.5	13.0	13.5	23.0	10.0	10.0
4-6	12.0	3.5	15.5	19.3	31.3	15.8	12.5
5-6	5.0	23.0	28.0	26.3	31.3	3.3	0.0
c 5-7	6.3	23.0	29.3	23.0	29.3	0.0	0.0
6-8	8.0	28.0	36.0	31.3	39.3	3.3	3.3

More to come... Press PgDn/PgUp to scroll

Size: 8 nodes x 11 activities

*** CPM SOLUTION ***

Project duration = 39.279999

Activity	Duration	Earliest start	Earliest Compl.	Latest start	Latest compl.	Total float	Free float
7-8	10.0	29.3	39.3	29.3	39.3	-0.0	-0.0

(ii). Probabilistic Case –

Table consists of values (a,b,m),
where **a –**Optimistic Time, **m –** Most likely Time, **b –** Pessimistic time.

Activities	1	2	3	4	5	6
1	-	(3,7,5)	(4,8,6)	-	-	-
2	-	-	(1,5,3)	(5,11,8)	-	-
3	-	-	-	-	(1,3,2)	(9,13,11)
4	-	-	-	-	-	(1,1,1)
5	-	-	-	-	-	(10,14,12)
6	-	-	-	-	-	-

CPM Solution –

Size: 6 nodes x 8 activities

*** PERT SOLUTION (activities) ***

Expected project duration = 22.000000

activity	Duration estimates a	b	m	Expected duration	Variance
1-2	3.0	7.0	5.0	5.0	0.44
1-3	4.0	8.0	6.0	6.0	0.44
2-3	1.0	5.0	3.0	3.0	0.44
2-4	5.0	11.0	8.0	8.0	1.00
3-5	1.0	3.0	2.0	2.0	0.11
3-6	9.0	13.0	11.0	11.0	0.44
4-6	1.0	1.0	1.0	1.0	0.00
5-6	10.0	14.0	12.0	12.0	0.44

Size: 6 nodes x 8 activities

*** PERT SOLUTION (nodes) ***

Expected project duration = 22.000000

Node	Expected occurrence time	Standard deviation
1	0.00	0.00
2	5.00	0.67
3	8.00	0.94
4	13.00	1.20
5	10.00	1.00
6	22.00	1.20