OR LAB -4

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Q1)

```
Iteration: 2
The Tableau:
3 3 0.5 1 -0.5 0.5 0 0 0 1.5
0 6 2.5 0 0.5 -0.5 1 0 0 2.5
0 7 1 0 0 0 0 1 0 2.5
0 8 -0.5 0 0.5 -0.5 0 0 1 0

Basic Variables:
x2 = 1.5, x5 = 2.5, x6 = 2.5, x7 = 0,
Minimum Ratios:
3, 1, 2.5,
Rest all xis=0 i.e. Non-Basic variables
Reached the termination state

Total Number of iterations to solve the Problem: 4

The Optimisation function is optimised at the point : x2 = 1.5, x1 = 0.833333, x6 = 1.66667, x3 = 0.833333, Rest all xis
=0
The value of the objective function at this point is : 10.3333
```

Q2)

```
Iteration: 1
The Tableau:
-1e+06 6 1 1 0 -1 1 0 2
0 7 2 0 1 0 0 1 2

Basic Variables:
x5 = 2, x6 = 2,
Minimum Ratios:
2, 1,
Rest all xis=0 i.e. Non-Basic variables
Reached the termination state

Total Number of iterations to solve the Problem: 3

The Optimisation function is optimised at the point : x2 = 1, x1 = 1, Rest all xis=0
The value of the objective function at this point is : 12
```

Q3)

```
Iteration: 1
The Tableau:
-1e+06 6 2 2 -1 -1 1 0 0 0 2
-1e+06 8 3 -4 0 0 0 -1 1 0 3
0 9 0 1 3 0 0 0 0 1 3

Basic Variables:
x5 = 2, x7 = 3, x8 = 3,
Minimum Ratios:
1, 1, inf,
Rest all xis=0 i.e. Non-Basic variables
Unbounded solution!!!....EXITING...
```

Q4)

```
Iteration: 1
The Tableau:
0 5 5 7 4 1 0 0 0 7
0 6 4 -7 -5 0 1 0 0 2
-1e+06 8 3 4 -6 0 0 -1 1 3

Basic Variables:
x4 = 7, x5 = 2, x7 = 3,
Minimum Ratios:
1, 0.75,
Rest all xis=0 i.e. Non-Basic variables
Reached the termination state

Total Number of iterations to solve the Problem: 4

The Optimisation function is optimised at the point : x3 = 0.138196, x1 = 1.01536, x2 = 0.195777, Rest all xis=0
The value of the objective function at this point is : 3.71401
```

Q5)

```
Iteration: 1
The Tableau:
-1e+06 6 1 -1 1 -1 1 0 0 0 4
0 7 1 1 2 0 0 1 0 0 8
-1e+06 9 1 0 1 0 0 0 -1 1 2

Basic Variables:
x5 = 4, x6 = 8, x8 = 2,
Minimum Ratios:
4, 4, 2,
Rest all xis=0 i.e. Non-Basic variables
Reached the termination state

Total Number of iterations to solve the Problem: 4

The Optimisation function is optimised at the point : x7 = 2, x2 = 0, x3 = 4, Rest all xis=0
The value of the objective function at this point is : 12
```