**PRACTICAL NO 7**

**PYTHON PROGRAM TO SOLVE LPP BY USING PULP MODULE METHOD**

**Name :**

**Roll No:**

**Q.1]**

 from pulp import\*

Z = LpProblem('Problem',LpMaximize)

x = LpVariable('x',lowBound = 0)

y = LpVariable('y',lowBound=0)

Z+= 150\*x + 75\*y

Z+= 4\*x + 6\*y <= 24

Z+= 5 \* x +3\*y <= 15

print(Z)

Z.solve()

print('x=', value(x),'y =',value(y),'Z=',value(Z.objective))

**OUTPUT:**Problem:

MAXIMIZE

150\*x + 75\*y + 0

SUBJECT TO

\_C1: 4 x + 6 y <= 24

\_C2: 5 x + 3 y <= 15

VARIABLES

x Continuous

y Continuous

x= 3.0 y = 0.0 Z= 450.0

**Q.2]**

from pulp import\*

z = LpProblem('Problem',LpMinimize)

x = LpVariable('x',lowBound = 0)

y = LpVariable('y',lowBound=0)

z += 3.5\*x + 2\*y

z += x+y >= 5

z += x >= 4

z += y <= 2

print(z)

z. solve()

print('x=', value(x),'y =',value(y),'Z=',value(z. objective))

**OUTPUT:**

Problem:

MINIMIZE

3.5\*x + 2\*y + 0.0

SUBJECT TO

\_C1: x + y >= 5

\_C2: x >= 4

\_C3: y <= 2

VARIABLES

x Continuous

y Continuous

x= 4.0 y = 1.0 Z= 16.0

**Q.3]**

from pulp import\*

z = LpProblem('Problem',LpMinimize)

x = LpVariable('x',lowBound = 0)

y = LpVariable('y',lowBound=0)

z += x + y

z += x+y <= 11

z += x >= 6

z += y >= 6

print(z)

z.solve()

print('x=', value(x),'y =',value(y),'Z=',value(z.objective))

**OUTPUT:**

Problem:

MINIMIZE

1\*x + 1\*y + 0

SUBJECT TO

\_C1: x + y <= 11

\_C2: x >= 6

\_C3: y >= 6

VARIABLES

x Continuous

y Continuous

x= 6.0 y = 6.0 Z= 12.0

**Q.4]**

from pulp import\*

z = LpProblem('Problem',LpMaximize)

x = LpVariable('x',lowBound = 0)

y = LpVariable('y',lowBound=0)

z += x + y

z += x-y >= 1

z += x+y >= 2

print(z)

z.solve()

print('x=', value(x),'y =',value(y),'Z=',value(z.objective))

**OUTPUT:**

Problem:

MAXIMIZE

1\*x + 1\*y + 0

SUBJECT TO

\_C1: x - y >= 1

\_C2: x + y >= 2

VARIABLES

x Continuous

y Continuous

x= 0.0 y = 0.0 Z= 0.0

**Q.5]**

from pulp import\*

z = LpProblem('Problem',LpMinimize)

x = LpVariable('x',lowBound = 0)

y = LpVariable('y',lowBound=0)

z += 0.2\*x + 0.8\*y

z += x + y >= 700

z += 0.21 \* x- 0.30\*y <= 0

z += 0.03\*x - 0.01\*y >= 0

print(z)

z.solve()

print('x=', value(x),'y =',value(y),'Z=',value(z.objective))

**OUTPUT:**

Problem: MINIMIZE 0.2\*x + 0.8\*y + 0.0

SUBJECT TO

\_C1: x + y >= 700

\_C2: 0.21 x - 0.3 y <= 0

\_C3: 0.03 x - 0.01 y >= 0

VARIABLES

x Continuous

y Continuous

x= 411.76471 y = 288.23529 Z= 312.9411740000000