MIS 64018 - Quantitative Management Modeling

Assignment 4 Q1-Q2

1- Formulate and solve this transportation problem using lpsolve, or any other equivalent library in R.

See the "lp" and "rmd" files for this problem on GitHub

1) What is the minimum cost of providing oil to the refineries? Which wells are used to capacity in the optimal schedule? Formulation of the problem is enough.

Objective Function:

Min. 1.52 X14 + 1.60 X15 + 1.40 X16 + 1.70 X24 + 1.63 X25 + 1.55 X26 + 1.45 X34 + 1.57 X35 + 1.30 X36 + 5.15 X47 + 5.69 X48 + 6.13 X49 + 5.63 X410 + 5.80 X411 + 5.12 X57 + 5.47 X58 + 6.05 X59 + 6.12 X510 + 5.71 X511 + 5.32 X67 + 6.16 X68 + 6.25 X69 + 6.17 X610 + 5.87 X611

S.T

X14 + X15 + X16 = 93
X24 + X25 + X26 = 88
X34 + X35 + X36 = 95
X47 + X57 + X67 = 30
X48 + X58 + X68 = 57
X49 + X59 + X69 = 48
X410 + X510 + X610 = 91
X411 + X511 + X611 = 48
X412 + X512 + X612 = 2
X14 + X24 + X34 = X47 + X48 + X49 + X410 + X411 + X412;
X15 + X25 + X35 = X57 + X58 + X59 + X510 + X511 + X512;
X16 + X26 + X36 = X67 + X68 + X69 + X610 + X611 + X612;
X14 to X612 ≥ **0**

2) Show the network diagram corresponding to the solution in (a). That is, label each of the arcs in the solution and verify that the flows are consistent with the given.