SOLUTIONS TO QUIZ 1

Answer

Decision variables (20 pts):

x_i : 1 if player i is signed, 0 o/w (Zagars: 1, Wilbekin: 2, Mahmutoğlu: 3, Birch: 4, Birsen: 5)

Objective function (20 pts):

max $15x_1 + 40x_2 + 22x_3 + 24x_4 + 10x_5$

Constraints (20 pts):

$x_1 + 4x_2 + 2x_3 + 2x_4 + 0.8x_5 \leq 7$

Sign restriction (20 pts):

All variables binary: $x_i \in \{0,1\}$ for all i

Type (20 pts):

Knapsack problem

Answer

Decision variables (20 pts):

x_i : 1 if player number i is selected for the lineup, 0 o/w (i = 1, 2, ..., 12)

Objective function (20 pts):

max $80x_1 + 70x_2 + 90x_3 + 80x_4 + 60x_5 + 100x_6 + 70x_7 + 70x_8 + 70x_9 + 100x_{10} + 90x_{11} + 60x_{12}$

Constraints (20 pts):

$x_1 + x_2 = 1$ (PG assignment)

$x_3 + x_4 + x_5 = 1$ (SG assignment)

$x_6 + x_7 = 1$ (SF assignment)

$x_8 + x_9 = 1$ (PF assignment)

$x_{10} + x_{11} + x_{12} = 1$ (C assignment)

Sign restriction (20 pts):

All variables binary: $x_i \in \{0,1\}$ for all i

Type (20 pts):

Set partitioning problem