

Assignment-6

Lecturer: *Wan-Lei Zhao*

1. Please solve the following 0-1 programming problem by branch-bounding method.

$$\begin{aligned} & \text{Max. } 15x_1 + 25x_2 + 12x_3 + 10x_4 \\ \text{s. t. } & \begin{cases} 3x_1 + 6x_2 + 5x_3 + 5x_4 \leq 12 \\ x_1, x_2, x_3, x_4 = 0 \text{ or } 1 \end{cases} \end{aligned}$$

2. Please solve the following integer programming problem by cutting-plane method.

$$\begin{aligned} & \text{Max. } x_1 + 2x_2 \\ \text{s. t. } & \begin{cases} 2x_2 \leq 7 \\ x_1 + x_2 \leq 7 \\ 2x_1 \leq 11 \\ x_1, x_2 \geq 0 \quad \& \quad \textit{integer} \end{cases} \end{aligned}$$

3. Please solve the following integer programming problem by cutting-plane method.

$$\begin{aligned} & \text{Max. } 5x_1 + 2x_2 \\ \text{s. t. } & \begin{cases} 2x_1 + 2x_2 \leq 9 \\ 3x_1 + x_2 \leq 11 \\ x_1, x_2 \geq 0 \quad \& \quad \textit{integer} \end{cases} \end{aligned}$$

- Requirements:

1. Submission due: **2024/Dec./31, 23:00pm**
2. Submit the “*.pdf” to lecwlzhao@163.com, email title “your-name + your student number”
3. The PDF file name should be **assignment6_studentnumber.pdf**