Review problems for the final exam

Also solve the review problems for the midterm exams. **The final exam is cumulative.**

You are allowed to bring two pages (both sides) of notes in your own handwriting to the exam.

**Problem 1.** Solve parts (a) and (b) of exercise 7 in section 5.4. Can this problem be transformed to an assignment problem? What cost matrix would you use?

**Problem 2.** Four teams of workers are available to do 4 jobs. The cost required for each team to do each job is given in the table below. Assign the teams to do the jobs at minimum cost. Write the problem in the form of an integer programming problem.

<table>
<thead>
<tr>
<th></th>
<th>Job1</th>
<th>Job2</th>
<th>Job3</th>
<th>Job4</th>
</tr>
</thead>
<tbody>
<tr>
<td>Team1</td>
<td>2</td>
<td>5</td>
<td>3</td>
<td>6</td>
</tr>
<tr>
<td>Team2</td>
<td>3</td>
<td>7</td>
<td>4</td>
<td>6</td>
</tr>
<tr>
<td>Team3</td>
<td>5</td>
<td>6</td>
<td>3</td>
<td>5</td>
</tr>
<tr>
<td>Team4</td>
<td>4</td>
<td>5</td>
<td>8</td>
<td>3</td>
</tr>
</tbody>
</table>

**Problem 3.** Solve Exercise 1 in section 5.2

**Problem 4.** Solve the following transportation problem

\[
C = \begin{bmatrix}
3 & 5 & 4 \\
6 & 11 & 3 \\
8 & 6 & 5
\end{bmatrix}, \quad s = \begin{bmatrix}
60 \\
40 \\
50
\end{bmatrix}, \quad d = \begin{bmatrix}
50 \\
40 \\
30
\end{bmatrix}
\]

Write this transportation problem as a linear programming problem.

**Problem 5.** Solve Exercise 10 in section 5.1

**Problem 6.** Solve Exercise 4 in section 5.4. Find the maximal flow and the minimum capacity cut.

**Problem 7.** Solve Exercise 8 in section 3.4.

**Problem 8.** Solve Exercise 2 in section 4.2.

**Problem 9.** Solve Exercise 4 in section 4.1.

**Problem 10.** Solve Exercise 7 in section 3.5.

**Problem 11.** Solve Exercise 6 in section 5.4.

**Problem 12.** Solve Exercise 2 in section 5.5.