## Assignment 11

The due date for submitting this assignment has passed. All your work will count toward your final grade. Please submit your work as soon as possible. The assignment is worth 1 point.

### 1. Consider a two-user CDMA system with imperfect power control. Let $E_s/N_0 = 4$ dB and $E_s/\sigma^2 = 1$. The degradation factor $\delta$ for the first user and second user are respectively.

<table>
<thead>
<tr>
<th>$E_s/N_0$</th>
<th>$\delta$</th>
</tr>
</thead>
<tbody>
<tr>
<td>3 dB</td>
<td>0.5</td>
</tr>
<tr>
<td>6 dB</td>
<td>0.2</td>
</tr>
</tbody>
</table>

Rs. the answer is incorrect. Score: 0/1

### 2. For the question 1, what is the SNR and SIR required for the user 1 and user 2 respectively?

<table>
<thead>
<tr>
<th>User</th>
<th>SNR (dB)</th>
<th>SIR (dB)</th>
</tr>
</thead>
<tbody>
<tr>
<td>User 1</td>
<td>10</td>
<td>6</td>
</tr>
<tr>
<td>User 2</td>
<td>8</td>
<td>5</td>
</tr>
</tbody>
</table>

Rs. the answer is incorrect. Score: 0/1

### 3. For a data system in question 2, we decrease the power of transmission of user 2, which of the following statements is correct?

- $SIR$ will remain unchanged, $SNR$ will increase
- $SNR$ will decrease, $SIR$ will increase
- $SIR$ will decrease, $SNR$ will increase
- $SNR$ will decrease, $SIR$ will decrease

Rs. the answer is incorrect. Score: 0/1

### 4. Consider a multi-cell CDMA system with $N = 30$, $d = 0.7$, $L = 30$. The length of spreading sequences is $G = 128$. The ratio of interference power to useful power is $K = 0.5$. What is the SNR of the system? Assume perfect power control with $a = 1$ for all users.

<table>
<thead>
<tr>
<th>$K$</th>
<th>SNR (dB)</th>
</tr>
</thead>
<tbody>
<tr>
<td>0.5</td>
<td>10</td>
</tr>
</tbody>
</table>

Rs. the answer is incorrect. Score: 0/1

### 5. For a CDMA system, the target $SNR$ is $10$ dB and $L = 0.6$. The Voice-Activity Factor $\alpha$ and the length of spreading sequences is $G = 128$. What is the peak capacity of the system?

<table>
<thead>
<tr>
<th>$\alpha$</th>
<th>Peak Capacity</th>
</tr>
</thead>
<tbody>
<tr>
<td>0.5</td>
<td>20</td>
</tr>
</tbody>
</table>

Rs. the answer is incorrect. Score: 0/1

### 6. For the system described in the previous question if the Total Noise has due to interference is $4.77$ dB, what is the practical capacity of the system?

<table>
<thead>
<tr>
<th>$T_N$</th>
<th>Practical Capacity</th>
</tr>
</thead>
<tbody>
<tr>
<td>4.77 dB</td>
<td>15</td>
</tr>
</tbody>
</table>

Rs. the answer is incorrect. Score: 0/1

### 7. Which of the following could be a potential problem with the de-correlating receiver?

- Multi-user interference
- Near-far problem
- Noise enhancement
- Noise of the above

Rs. the answer is incorrect. Score: 0/1

### 8. What can be a possible disadvantage of self-excitation under the assumption that the radio increases beyond the nominal value?

- Reduced coverage area
- Increased interference from neighboring base stations
- Both (a) and (b)
- None of the above

Rs. the answer is incorrect. Score: 0/1

### 9. Which of the following could be a potential problem with the de-correlating receiver?

- Multi-user interference
- Near-far problem
- Noise enhancement
- None of the above

Rs. the answer is incorrect. Score: 0/1

### 10. For the above question about self-excitation, what is a possible drawback if the radio increases below the nominal value?

- Creation of rogue with no coverage
- Increased interference
- Both (a) and (b)
- None of the above

Rs. the answer is incorrect. Score: 0/1

### 11. If two L courtaneous sequences, mutually orthogonal between 2 sequences should be as close as possible. This helps to prevent which of the following?

- Multi-user interference
- Multi-path interference
- Both (a) and (b)
- None of the above

Rs. the answer is incorrect. Score: 0/1

### 12. Download KDDocs

Due on 2010-10-15, 23:09 IST.