Assignment 11

The due date for submitting this assignment is Oct 20.

1. In OCM, the average transmitted power when the symbols are zero-padded is given by $P_{av}$ and the average transmitted power when a cyclic prefix is used is given by $P_{av}$. Which of the following is true?

   - $P_{av} > P_{av}$
   - $P_{av} < P_{av}$
   - $P_{av} = P_{av}$
   - None of the above

   Due date: October 20, 2023.
   Accepted attempts: 2.

2. In OFDM, the receiver correctly decodes the symbols when a cyclic prefix is used by $RC_1$ and the receiver correctly decodes when a cyclic prefix is used by $RC_0$. Which of the following is true?

   - $RC_1 > RC_0$
   - $RC_1 < RC_0$
   - $RC_1 = RC_0$
   - None of the above

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3. Let $W_{id}$ be the normalized IFT matrix. We know that a circulant matrix $C_{circ}$ can be represented as $C_{circ} = W_{id}^{-1}W_{id}$ where $W_{id}$ is a diagonal matrix with FFT coefficients. What are the following the correct value for $C_{circ}^{-1}$?

   - $C_{circ}^{-1} = W_{id}^{-1}W_{id}$
   - $C_{circ}^{-1} = W_{id}^{-1/2}W_{id}^{-1/2}$
   - $C_{circ}^{-1} = (W_{id}^{-1/2})^{-1/2}$
   - $C_{circ}^{-1} = (W_{id}^{-1/2})^{1/2}$

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