1. What is hysteresis and how does it help prevent bad behavior on digital inputs?
   - Hysteresis is an improvement over using thresholds by changing the voltage threshold based on the current state of the signal. This means that when a signal is high, for example, the threshold to transition to a low signal drops lower to prevent “accidental” transitions.
   - It helps prevents bad behavior by helping the circuit ignore unwanted ripples in voltage that might incorrectly be captured as a level change.
2. What is quantization?
   - Quantization is the process of mapping a higher-resolution signal to a lower resolution one. In the case of an ADC, it is the conversion of a smooth waveform to one in which analog voltage levels are now represented by values within a certain bit width.
3. What does Nyquist theory explain? What is the problem with sampling a signal too slowly?
   - Nyquist theory explains the relationship between sampling frequency and whether or not it’s possible to tell what the original signal was after the fact. The problem with sampling a signal too slowly is that additional fluctuations in the signal that may have occurred between samples will be missed entirely, resulting in a reconstructed waveform that is wholly inaccurate to reality.
4. The maximum resolution of the ADC is 12-bits. How many quantization steps/values does this give us?
   - 4096 steps
5. What are the steps to perform an ADC calibration?
   - Ensure ADEN = 0 and DMAEN = 0
   - Set ADCAL = 1
   - Wait until ADCAL = 0
     - (calibration factor can be read from bits 6:0 of ADC_DR)
6. What’s the difference between right and left-aligned data in the DAC registers?
   - Left-aligned data in the DAC register is used for selecting the upper bits of a 16-bit number.
   - Right aligned data simply loads data into the lower 8 bits of the register and is the “normal” mode of operation.
7. What DAC register would you use to write 8-bit right-aligned data? (use the peripheral reference manual)
   - DAC_DHR8Rx[7:0]
8. Name something you found confusing or unclear in the lab manual. If everything was clear, simply answer that you didn’t have any issues.
   - Don’t have any issues