

EE 3921

Dr. Johnson

Homework 12

1a – What is the minimum acceptable sample rate for a 20KHz band limited signals with – 20 pts

4 bit A/D with a 5V Vref

8 bit A/D with a 2.5V Vref

12 bit A/D with a 1.2V Vref

1b – Assuming a 16 bit A/D converter, with a Vref = 2.5V, determine the output code for each input voltage below – 20 pts

12mV

600mv

1.5v

2.2v

2.55v

2 – Run the ADC toolkit example from the ADC lecture but using a sine wave input equal to the last digit in your ID * 1KHz (e.g. if last digit is 3, use a 3KHz sine wave input). Provide the ADC toolkit waveform - 60 pts