Exercise 1:

Question: What do you think the display will look like if the digits are sequenced too fast?

They would probably all be a lot dimmer and harder to see.

Question: How long will each digit of the display be driven by the controller if the binary counter used for this sequencing is 15 bits? Assume a 50 MHz input clock.

163.84 micro seconds

Question: Assuming a 15 bit counter, how long will each digit be blanked?

491.52 micro seconds

Question: What is the purpose of the COUNTER\_BITS generic used in this design? Why would someone want to change the value of this generic?

It is the number of bits on the segment controller- someone could easily change the speed of the anode switching by changing this value

Exercise 2:

Question: What command would you use to create a 100 MHz oscillating clock signal with a 50% duty cycle (i.e., the ‘0’ time and the ‘1’ time of the clock are the same)?

isim force add clk 1 -value 0 -time 5 ns -repeat 10 ns

Question: What time does the testbench simulation end?

Done with simulation at time:6062070 ns

Exercise 3: