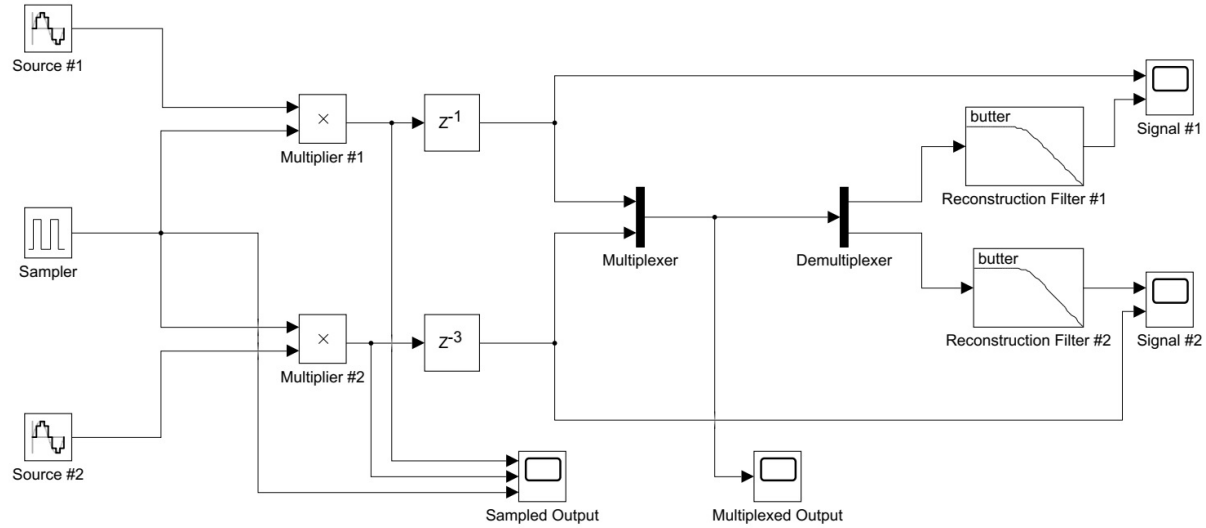
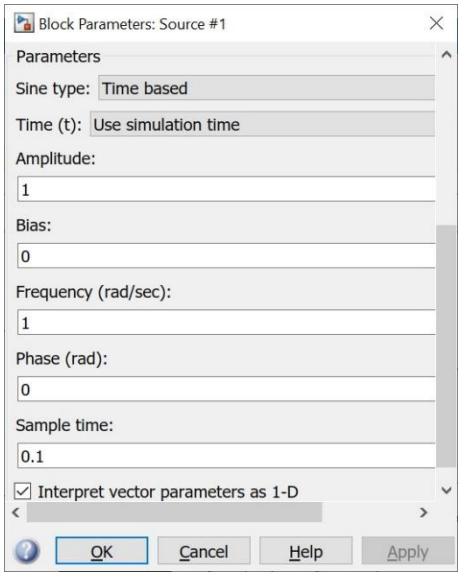
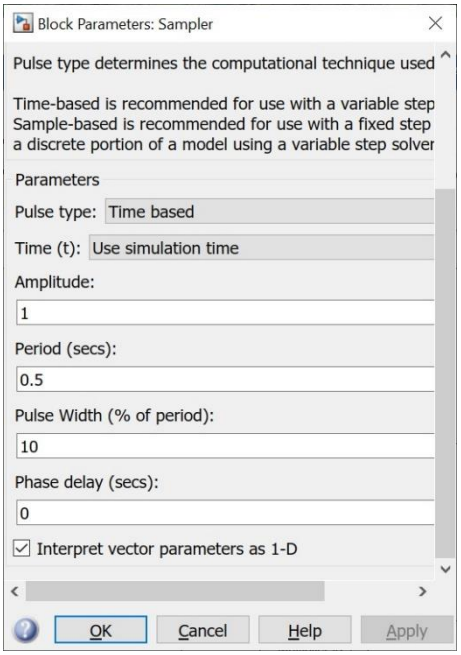
TDM with SIMULINK

(1) Construct a SIMULINK model as given below to study TDM:



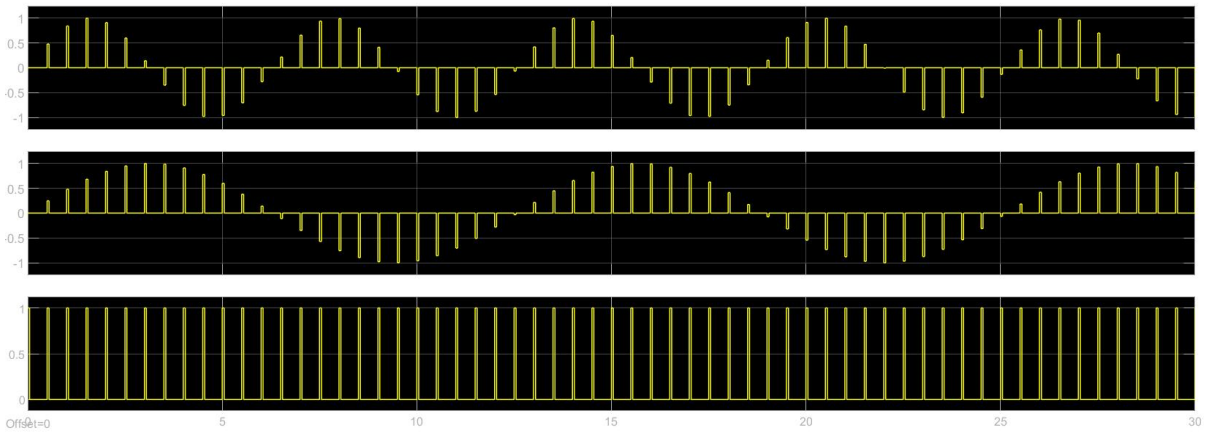
(2) Set the source #1 (Sine Wave block) and sampler (Pulse Generator block) block parameters as given below. For source #2 [not shown], set the frequency at 0.5 rad/sec.

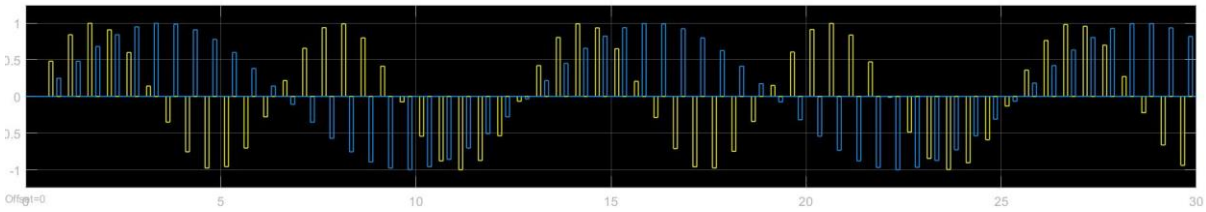




(3) Connect the multipliers (Product blocks) and slot selectors (Delay blocks) and set delay length as shown in the block diagram.

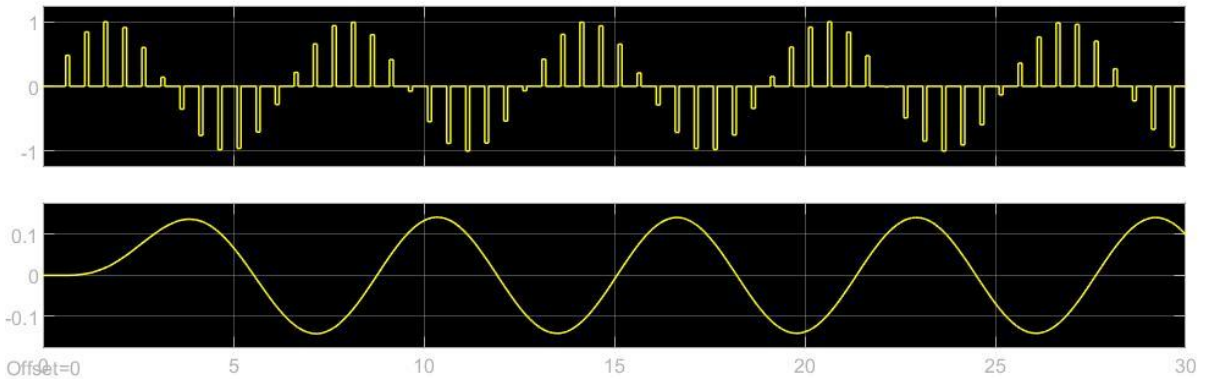
(4) Put multiplexer (Mux block) and demultiplexer (Demux block) next. Connect a 3 input scope to show the sampled outputs [shown below, top figure] and a 1 input scope to show the multiplexed output [shown below, bottom figure].





(5) Connect the demultiplexer outputs to reconstruction filters (Analog Filter Design blocks). Make Butterworth low-pass filter of order 3 with passband edge frequencies equal to the respective source frequencies [see step 2].

(6) Set 2 input scopes and compare the reconstructed signals with the corresponding multiplexer inputs. Sample output for signal #1 is shown below.



(7) Run the simulation for 30 seconds. Capture the model and outputs of the scopes and put them in the report [a single PDF file]. Also, comment on the gain and phase delay of the reconstructed waves.