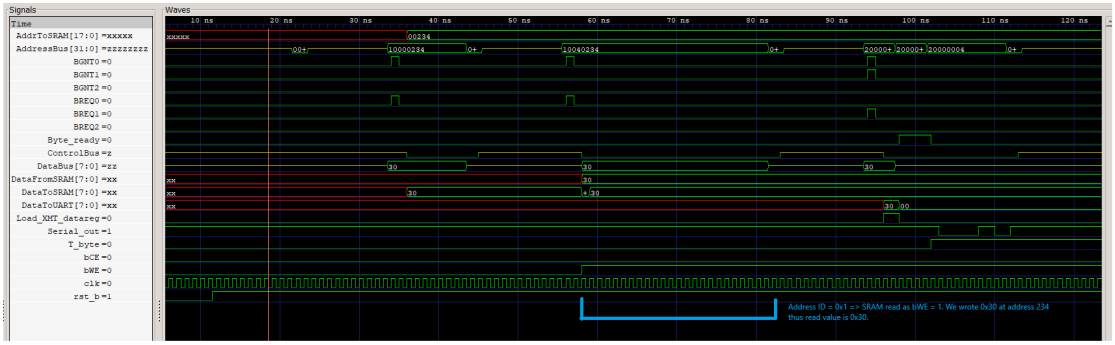
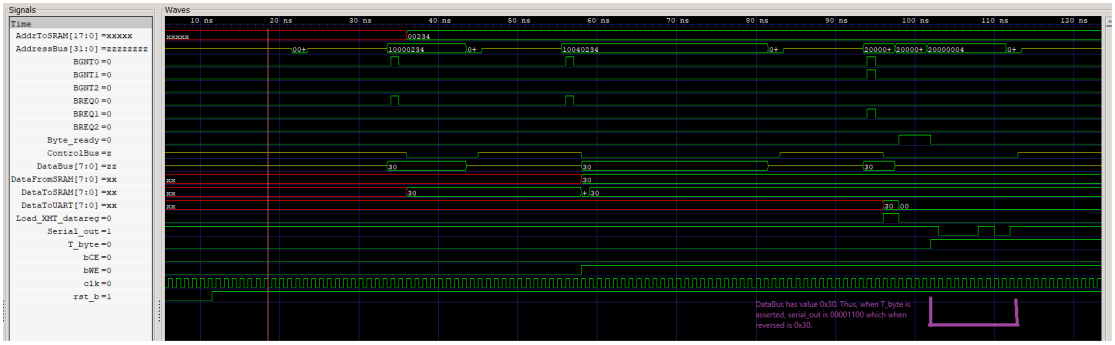
Q.1

SRAM Write waveform

SRAM Read waveform



UART output waveform



Q.2

Below is the terminal output. Additionally, I have also attached a cout.txt for full output.

```
(systemc) bash-4.4$ make
rm -f main.o SRAM.o SRAM_WRAP.o UART_XMTR.o UART_XMTR_WRAP.o Arbiter.o test.o si
m.out
g++ -c main.cpp -I/home/grads/k/k3sh4v/miniconda3/envs/systemc/include -L/home/g
rads/k/k3sh4v/miniconda3/envs/systemc/lib -lsystemc -std=c++17
g++ -c SRAM.cpp -I/home/grads/k/k3sh4v/miniconda3/envs/systemc/include -L/home/g
rads/k/k3sh4v/miniconda3/envs/systemc/lib -lsystemc -std=c++17
g++ -c SRAM_WRAP.cpp -I/home/grads/k/k3sh4v/miniconda3/envs/systemc/include -L/h
ome/grads/k/k3sh4v/miniconda3/envs/systemc/lib -lsystemc -std=c++17
g++ -c UART_XMTR.cpp -I/home/grads/k/k3sh4v/miniconda3/envs/systemc/include -L/h
ome/grads/k/k3sh4v/miniconda3/envs/systemc/lib -lsystemc -std=c++17
g++ -c UART_XMTR_WRAP.cpp -I/home/grads/k/k3sh4v/miniconda3/envs/systemc/include
 -L/home/grads/k/k3sh4v/miniconda3/envs/systemc/lib -lsystemc -std=c++17
g++ -c Arbiter.cpp -I/home/grads/k/k3sh4v/miniconda3/envs/systemc/include -L/hom
e/grads/k/k3sh4v/miniconda3/envs/systemc/lib -lsystemc -std=c++17
g++ -c test.cpp -I/home/grads/k/k3sh4v/miniconda3/envs/systemc/include -L/home/g
rads/k/k3sh4v/miniconda3/envs/systemc/lib -lsystemc -std=c++17
g++ -o sim.out main.o SRAM.o SRAM_WRAP.o UART_XMTR.o UART_XMTR_WRAP.o Arbiter.o
test.o -I/home/grads/k/k3sh4v/miniconda3/envs/systemc/include -L/home/grads/k/k3
sh4v/miniconda3/envs/systemc/lib -lsystemc -std=c++17
(systemc) bash-4.4$ ./sim.out

        SystemC 3.0.0-Accellera --- Aug 29 2024 18:54:01
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        ALL RIGHTS RESERVED

Info: (I702) default timescale unit used for tracing: 1 ps (wave.vcd)

@1500 ps:: >>>>>>>>>>>>> Start Simulation
posedge at: 12 ns rst_b: 1 current state: 0 Load_XMT_datareg: 0 Byte_ready: 0 T_
byte: 0 Serial_out:1 XMT_datareg: 0 XMT_shftreg: 511 bit_count: 0
posedge at: 13 ns rst_b: 1 current state: 0 Load_XMT_datareg: 0 Byte_ready: 0 T_
byte: 0 Serial_out:1 XMT_datareg: 0 XMT_shftreg: 511 bit_count: 0
posedge at: 14 ns rst_b: 1 current state: 0 Load_XMT_datareg: 0 Byte_ready: 0 T_
byte: 0 Serial_out:1 XMT_datareg: 0 XMT_shftreg: 511 bit_count: 0
posedge at: 15 ns rst_b: 1 current state: 0 Load_XMT_datareg: 0 Byte_ready: 0 T_
byte: 0 Serial_out:1 XMT_datareg: 0 XMT_shftreg: 511 bit_count: 0
posedge at: 16 ns rst_b: 1 current state: 0 Load_XMT_datareg: 0 Byte_ready: 0 T_
byte: 0 Serial_out:1 XMT_datareg: 0 XMT_shftreg: 511 bit_count: 0
posedge at: 17 ns rst_b: 1 current state: 0 Load_XMT_datareg: 0 Byte_ready: 0 T_
byte: 0 Serial_out:1 XMT_datareg: 0 XMT_shftreg: 511 bit_count: 0
posedge at: 18 ns rst_b: 1 current state: 0 Load_XMT_datareg: 0 Byte_ready: 0 T_
byte: 0 Serial_out:1 XMT_datareg: 0 XMT_shftreg: 511 bit_count: 0
posedge at: 19 ns rst_b: 1 current state: 0 Load_XMT_datareg: 0 Byte_ready: 0 T_
byte: 0 Serial_out:1 XMT_datareg: 0 XMT_shftreg: 511 bit_count: 0
posedge at: 20 ns rst_b: 1 current state: 0 Load_XMT_datareg: 0 Byte_ready: 0 T_
byte: 0 Serial_out:1 XMT_datareg: 0 XMT_shftreg: 511 bit_count: 0
posedge at: 21 ns rst_b: 1 current state: 0 Load_XMT_datareg: 0 Byte_ready: 0 T_
byte: 0 Serial_out:1 XMT_datareg: 0 XMT_shftreg: 511 bit_count: 0
posedge at: 22 ns rst_b: 1 current state: 0 Load_XMT_datareg: 0 Byte_ready: 0 T_
byte: 0 Serial_out:1 XMT_datareg: 0 XMT_shftreg: 511 bit_count: 0
posedge at: 23 ns rst_b: 1 current state: 0 Load_XMT_datareg: 0 Byte_ready: 0 T_
```

Q.3

I have attached all the source files in the email.

Q.4.

Device 2(highest priority) -> Device 0 -> Device 1(lowest priority)