1. Draw and explain a timing diagram for a PCI write operation. Assume that 3 data transfers occur and that the following occurs during these transfers:
   - during the first data transfer the target is not ready for two clock cycles,
   - during the second data transfer both target and initiator are ready immediately, and
   - during the third data transfer, the initiator is not ready for two clock cycles.
You are to draw a diagram similar to Figure 3.23. On your diagram clearly indicate:
   - the address and data phases and any wait states,
   - which wire(s) are controlled by the target device, initiator device, or both, and
   - when the data is read off the bus by the target.
2. Complete the below timing diagram for the following sequence of bus transactions:
   • device A wants to do a read transfer and has asserted REQ A# at the start of cycle 0
   • device B wants to do a read transfer and has asserted REQ B# at the start of cycle 0
   • device C wants to do a write transfer and has asserted REQ C# at the start of cycle 0

Make the following assumptions:
   • devices A, B, and C all only want to transfer one piece of datum
   • the arbiter uses a round-robin priority scheme where currently Device B has the highest priority and device Device A has the lowest priority
   • for all three data transfers, both the initiator and target are ready as soon as possible
   • Before cycle 0 starts, the previous bus master deasserts IRDY# so it is free

The below figure shows the request (REQ#) and grant (GNT#) lines. Notice the hidden arbitration that PCI uses to hide arbitration.