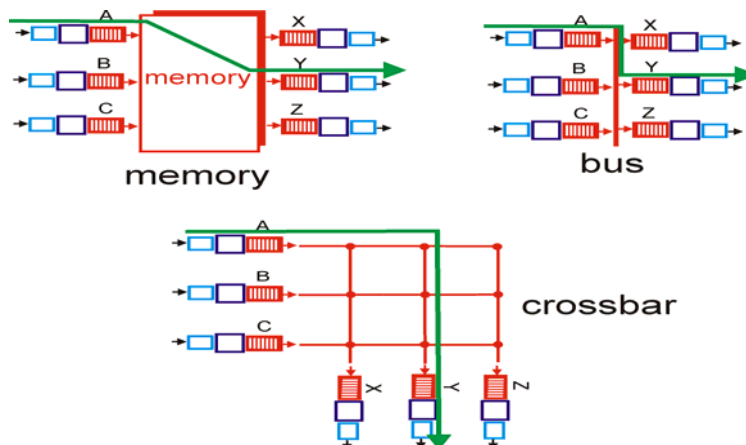


COE 344 – Quiz # 4

Name: **Key Solution**

ID #:

1. State Three KEY functions of the Network layer
 - a. Call setup/termination
 - b. Forwarding packets
 - c. Routing information-collecting/selecting
2. Switching fabric is one of the major components of the router. In the class, we studied three different implementations of switching fabric. Compare and contrast between these implementations.
 - a. **Switching via memory:** switching under direct control of CPU. Packet is copied to system's memory. Switching speed is limited by memory bandwidth. The slowest switching type.
 - b. **Switching via bus:** **one packet at a time, otherwise collision will happen.** Switching speed limited by bus bandwidth, sufficient speed for access and enterprise routers (not regional or backbone). A moderate switching type.
 - c. **Switching via crossbar:** overcome bus bandwidth limitations. The fastest switching type.



3. How does IPv4 support fragmentation and how does it work?

IPv4 support fragmentation through including special fields in the datagram header to assist the intermediate router as well the last destination in performing this task probably. Fragmentation is performed when the next hop networks' MTU is less than the current datagram size. Then the router will fragment the datagram into several individual datagram each of size of multiple of 8 bytes. Each datagram will carry the same header's information of the original datagram except for the fragmentation fields that are the offset and the flag that will tell whether this fragment is the last fragment or not.