2.) the Router eigrp line is setting interface to the eigrp routing protocol for the device, the network 172.16.0.0 line and the network 192.168.5.0 line are adding their respective set of ip networks to the routing table for eigrp, the distribute-list line defines that access list 7 is being broadcast to the routers connected over the line s0 which is defined by the “out” phrase, and the Access-list line allows the 172.16.0.0 network in access-list 7 which, based on the previous distribute-list allows the 172.16.0.0 network access out to the 192.168.5.0 network and further. The 10.0.0.0 network will be routed to Router B because the eigrp networks on router B include the immediate adjacent 172.16.0.0 that goes to router a, where 10.0.0.0 is connected and presumably isn’t being barred from going across the 172.16.0.0 network.

3.) IKE is the abbreviation for Internet Key Exchange which is a security protocol for VPN negotiation and remote access, it is necessary to ensure connection integrity and security over site to site VPN connections. I’m not sure what my “design” is, because the questions have not asked me to make a design of any type aside from the network topology in question 1 but, 2 factor authentication is a security measure that requires you to verify your security clearance into a system using two separate methods, usually a combination of either SMS messaging, generated codes, physical keys (usually in the form of a USB), application based authentication, and standard password-logins.

4.) One reason dynamic routing is “more favorable” in large enterprises is the scalability of the protocols and how easy they are to extend and grow, when you add a new router or extension the protocols let all the other routers know that there is a new connection and they adjust accordingly. Reason two is that dynamic routing is much more adaptable than static routing, allowing for removing or relocating sections of the network. And lastly it allows a network to adjust to failures, if one possible route goes down the system will do its best to find a new route. Comparatively, static routing is more difficult to grow, remove, or move sections of the network because everything has to be changed manually, and the same goes for failures.

5.) C. Shut down each of the affected interfaces.

6.) MPLS stands for multi-protocol label switching, which in a simple definition is a technique used to make routing packets more efficient by putting a “label” on the packet which coincides with the predetermined route that brings it to its destination, its used to try and limit unnecessary hops, and make packet delivery more consistent. The main benefit with using MPLS is that it allows for peak efficiency for high-variable traffic (i.e. customized low-latency routes for real-time traffic like video calls, and slower routes for email or document sharing).

7.) there’s only one reason (that I can think of or can find) for using a gateway on a layer 2 or layer 3 device, and that is to allow for remote communication to that device (like using telnet on a switch for example). That’s pretty much the only explanation I have to why anyone would do that so yeah… there it is.

Extra Note: Thanks for an awesome semester professor, and I hope you have a nice summer.