Q1. Choose the correct answer:

(a)
Dijkstra's algorithm is an example of:
III. Link State routing protocol.
Explanation: Dijkstra's algorithm computes shortest paths by maintaining a complete view of the network topology, characteristic of link-state protocols.

(b)
As part of hierarchical routing, hot-potato routing does the following:
I. Chooses the gateway that has the smallest cost.
Explanation: Hot-potato routing minimizes internal routing costs by quickly forwarding traffic to an external network at the least cost exit point.

(c)
True or False:
I. False, Because in BGP, each AS advertises to its neighbours only its reachability information, not the shortest distance.
In datagram networks, all packets carry the destination address, and hence each packet is independently routable.
III. True: Gateway routers run intra-AS protocols, such as OSPF internally, and inter-AS protocols, such as BGP externally.
IV. False: A distance-vector routing algorithm only has knowledge of a distance to its neighbors in terms of knowledge of the full network topology.
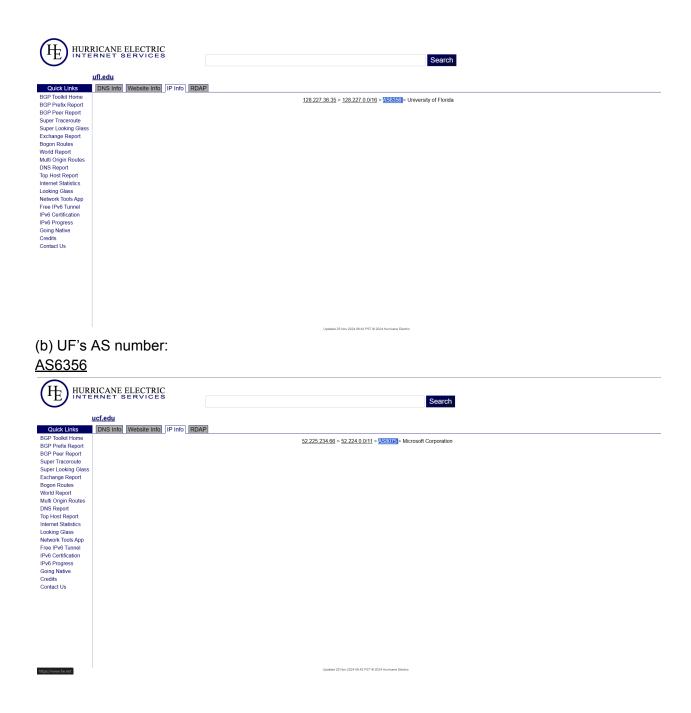
(d)
The distance-vector algorithm is based on the Bellman-Ford equation.
The Bellman-Ford equation is applied to iteratively estimate the shortest distance from a given node to all other nodes.

Q2. Autonomous System Finding
 For both of these I used the free tool hosted by Hurricane Electric Internet Services
(a) UCF's AS number:
AS8075

(b) UF's AS number:
AS6356

Q3. Link State Routing

step	D(z), p(z)	D(y), p(y)	D(v) ,p(v)	D(w), p(w)	D(u),p(u)	D(t),p(t)	D(x), p(x)
1	∞, -	∞, -	∞, -	0, -	∞, -	∞, -	∞, -
2	∞, -	∞, -	4, w		3, w	∞, -	6, w
3	∞, -	∞, -	4, w			5, u	6, w
4	∞, -	12, v				5, u	6, w
5	∞, -	12, v					6, w
6	14, x	12, v					
7	14, x						