1. What is scoping? Explain TTL scoping and administrative scoping.

2. *(DVMRP RFC: Discussion Question)* Explain the notion of a dominant router in DVMRP. What is a subordinate router? How does a dominant router know that a subordinate router is not on the shortest path tree back toward the source? How are prune messages handled in such a scenario?

3. Explain the concept of DVMRP Tunnels.

4. Given the shared tree multicast enabled PIM-SM network in figure shown below where router R6 is the rendezvous point, what path would be taken through the network for a client attached to router R8 to send multicast traffic to a client attached to Router R1.

5. What is a Shared Tree (ST), and a Shortest Path Tree (SPT)?

6. What is the role of \((*, G)\) and \((S, G)\) tables in a PIM-SM router?

7. Under what situations is it desirable to replace the entire shared tree with a source specific tree in a PIM-SM environment?

8. What is the rendezvous point (RP) in PIM-SM? What exactly does an RP do?
9. For the figure shown below, show the state in RP when sender is sending native multicast packets using SPT to RP and receivers have joined the group using a shared RP tree to receive these packets. Ignore all the flags that are part of this state table and show the relevant interfaces and previous hop with corresponding IP addresses. (Refer to the lecture slides 68, 69, 70 and 75).