Problem 5.

Yes, the specified conditions can be satisfied by assigning link weights to satisfy the following constraints:

1. Link (C, F) is the only link incident with C that lies on a shortest path from C to the sender node A
2. Nodes B, E, and F (but not G) accept copies of each multicast message before node C accepts
3. Link (C, G) is the only link incident with G that lies on a shortest path from G to the sender node A

A possible weight assignment is shown below: