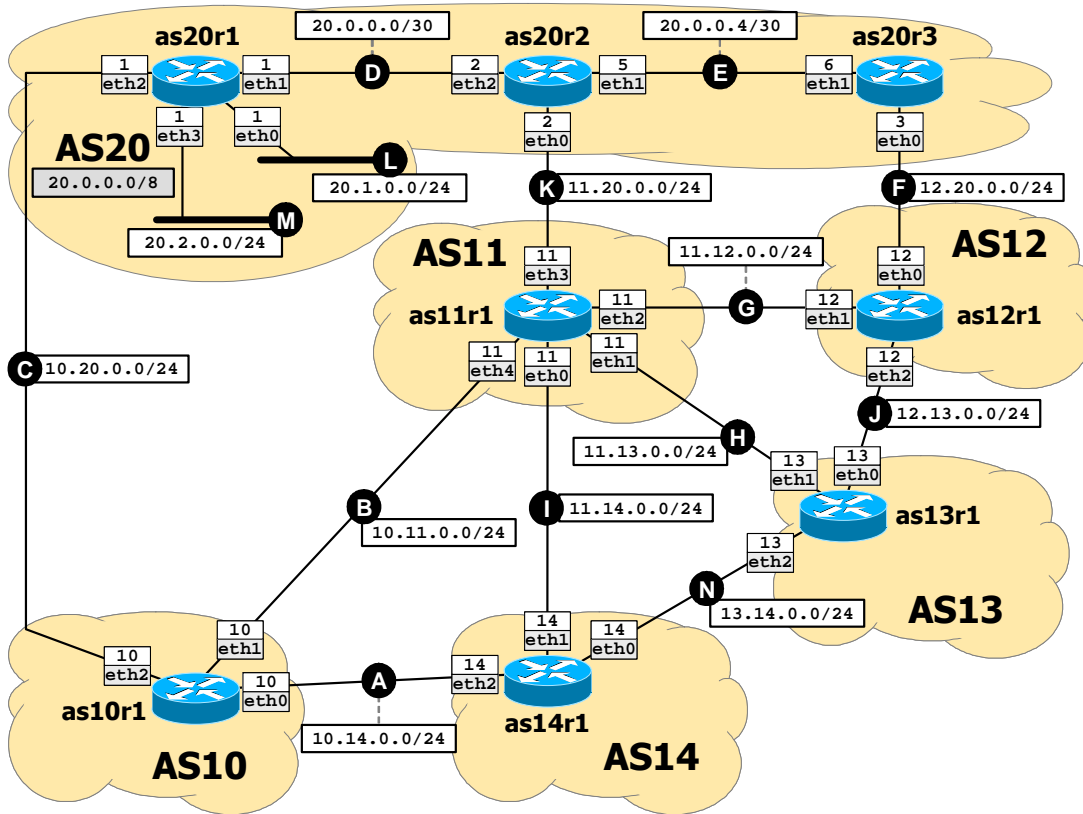**Available time: 120 minutes.**

Using Netkit, implement the network shown in the figure and described below (you can use the following items as a checklist).

☐ Routers in AS20 use the RIP protocol.
☐ All peering LANs are announced in BGP.
☐ BGP routers in AS20 also announce the aggregate network 20.0.0.0/8.
☐ BGP routers in AS20 **do not** establish iBGP peerings.
☐ No routers announce 0.0.0.0/0 or apply customer-provider policies.
☐ as10r1 applies <u>filters</u> in such a way to **avoid** sending traffic to AS20 through link C.
☐ as10r1, as11r1, as12r1, as13r1, and as14r1 <u>prefer</u> sending traffic to 20.1.0.0/24 and 20.2.0.0/24 along the paths depicted in Figure 1.
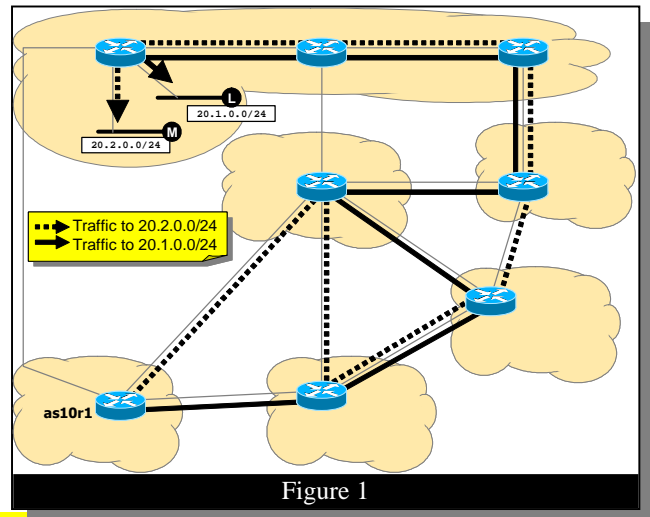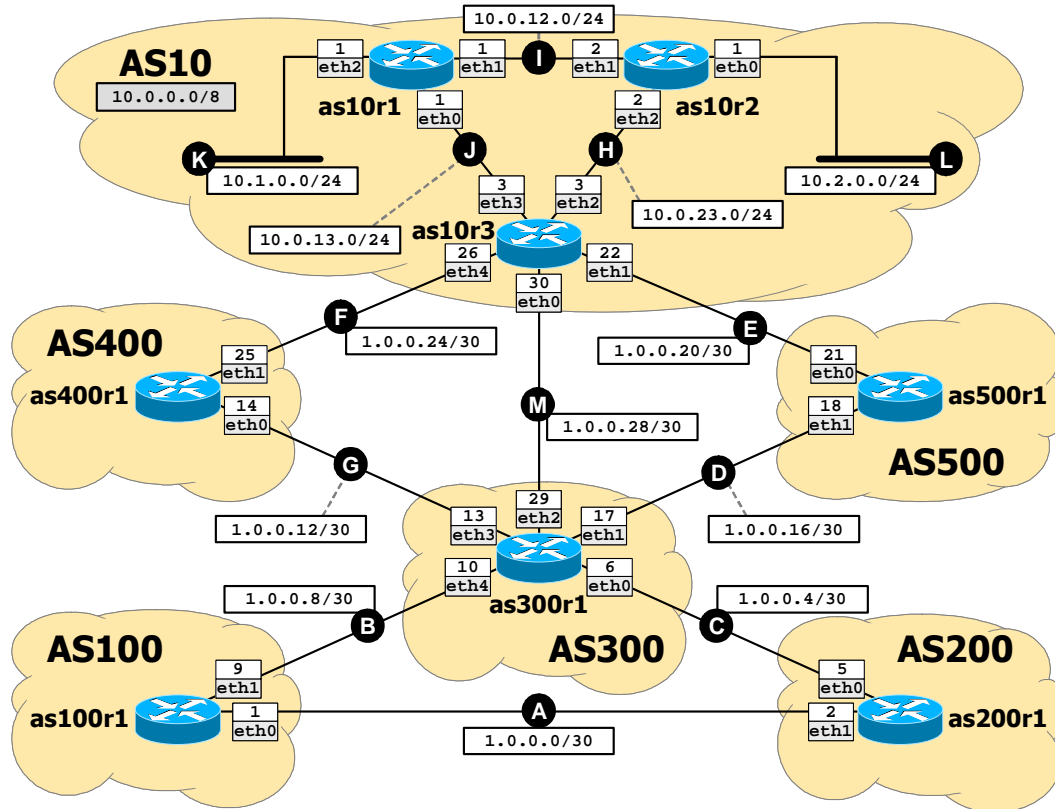

Figure 1

Goals:
- All routers must be able to reach any destinations.
- as10r1 must reach AS20's networks L and M using the specified paths.

Available time: 120 minutes.

Using Netkit, implement the network shown in the figure and described below (you can use the following items as a checklist).

☐ Routers in AS10 use the RIP protocol.
☐ All peering LANs are announced in BGP.
☐ BGP routers in AS10 also announce the aggregate network 10.0.0.0/8.
☐ No routers announce 0.0.0.0/0 or apply customer-provider policies.
☐ as100r1 applies <u>filters</u> in such a way to **avoid** sending traffic to AS10 through link B.
☐ as200r1, as300r1, as400r1, and as500r1 <u>prefer</u> sending traffic to 10.1.0.0/24 and 10.2.0.0/24 along the paths depicted in Figure 1.

Goals:
- All routers must be able to reach any destinations.
- as100r1 must reach AS10's networks K and L using the specified paths.
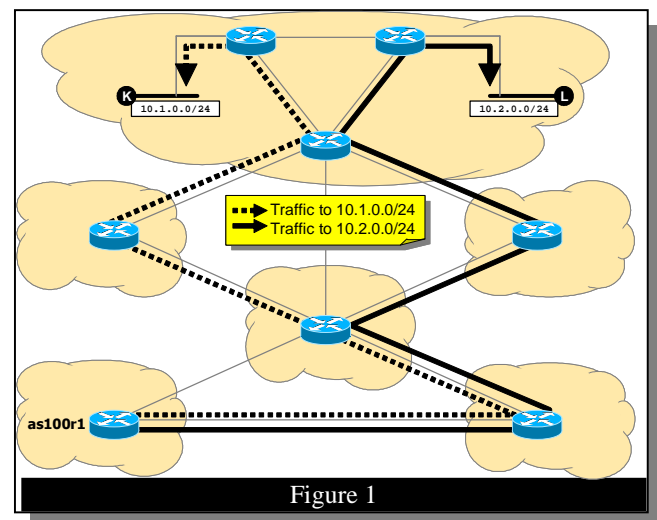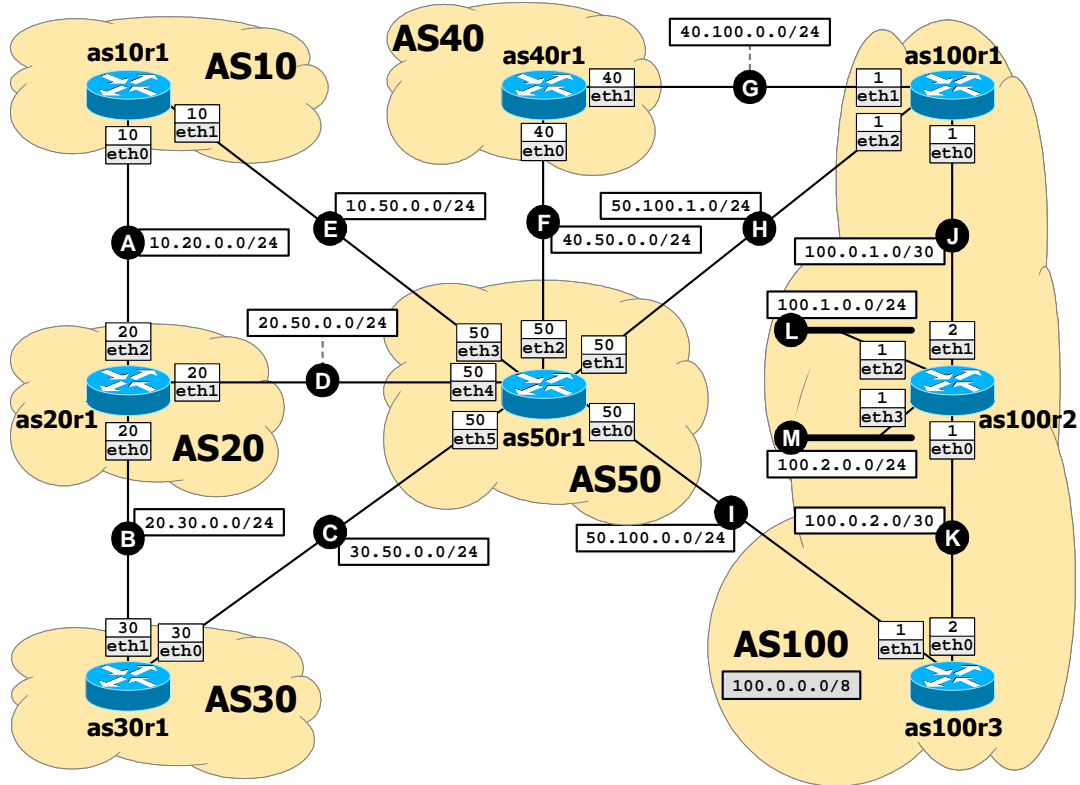

Figure 1

Available time: 120 minutes.

Using Netkit, implement the network shown in the figure and described below (you can use the following items as a checklist).

☐ Routers in AS100 use the RIP protocol.
☐ All peering LANs are announced in BGP.
☐ BGP routers in AS100 also announce the aggregate network 100.0.0.0/8.
☐ BGP routers in AS100 **do not** establish iBGP peerings.
☐ No routers announce 0.0.0.0/0 or apply customer-provider policies.
☐ as50r1 applies <u>filters</u> in such a way to **avoid** sending traffic to AS100 through links H and I.
☐ as10r1, as20r1, as30r1, and as40r1 <u>prefer</u> sending traffic to 100.1.0.0/24 and 100.2.0.0/24 along the paths depicted in Figure 1.

Figure 1

Goals:
- All routers must be able to reach any destinations.
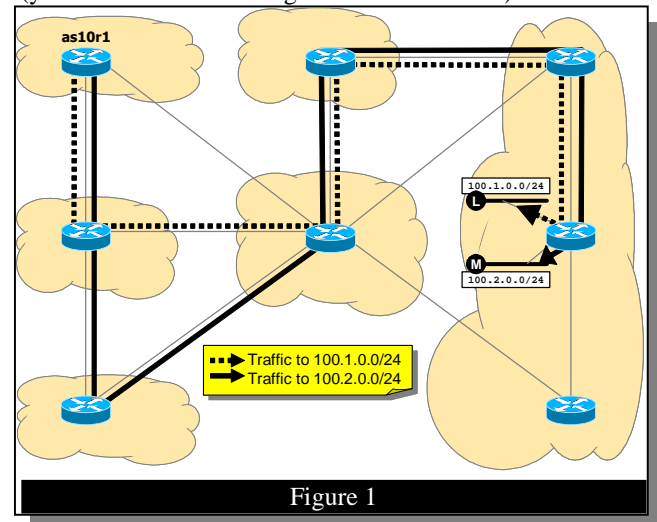- as10r1 must reach AS100's networks L and M using the specified paths.

Available time: 120 minutes.

AS1 — as1r1 — 1.2.0.0/24 — A
1 eth1 — B
1 eth0
AS2 — as2r1 — 2 eth1 — A — 2 eth0 — C
1.3.0.0/24 — 3.4.0.0/24
AS4 — as4r1 — 4.6.0.0/24
AS3 — as3r1 — 3 eth2 — 3 eth1 — D — 4 eth1 — 4 eth0 — G
3 eth3 — 3 eth0 — 4 eth2
2.3.0.0/24 — 3.5.0.0/24 — 4.5.0.0/24 — F — 5.6.0.0/24 — H
E — 5 eth2 — 5 eth1 — 5 eth0
AS5 — as5r1
AS6 — as6r1 — 6 eth1 — 6 eth2 — 1 eth0 — I 6.0.0.0/30 — 2 eth1 — as6r2 — 1 eth2 — K 6.1.0.0/24 — 5 eth0 — J 6.0.0.4/30 — 6 eth0 — as6r3 — 1 eth1 — L 6.2.0.0/24
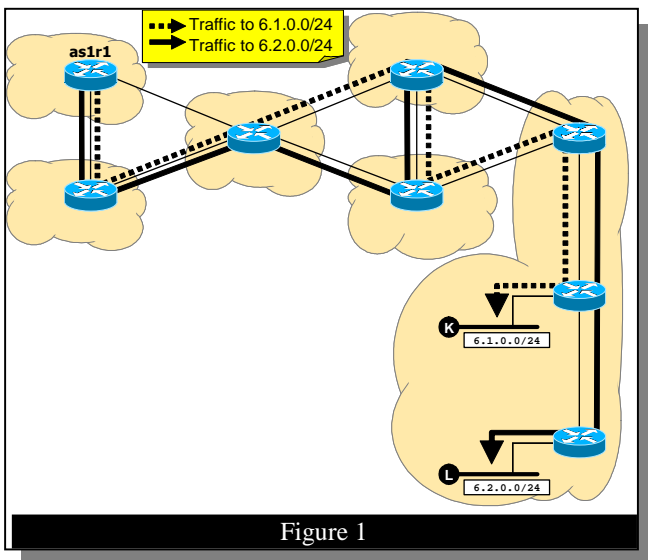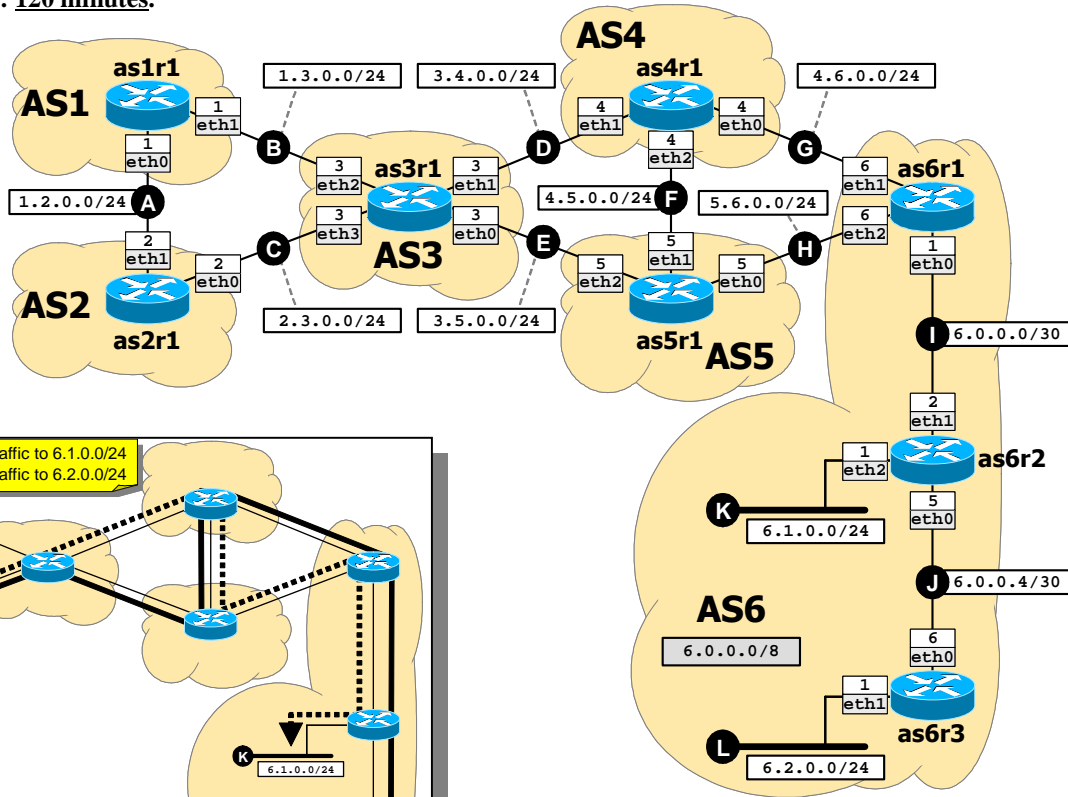AS6 6.0.0.0/8

Figure 1

Using Netkit, implement the network shown in the figure and described below (you can use the following items as a checklist).

☐ Routers in AS6 use the RIP protocol.
☐ All peering LANs are announced in BGP.
☐ BGP routers in AS6 also announce the aggregate network 6.0.0.0/8.
☐ No routers announce 0.0.0.0/0 or apply customer-provider policies.
☐ as1r1 applies filters in such a way to **avoid** sending traffic to AS6 through link B.
☐ as2r1, as3r1, as4r1, and as5r1 prefer sending traffic to 6.1.0.0/24 and 6.2.0.0/24 along the paths depicted in Figure 1.

Goals:
• All routers must be able to reach any destinations.
• as1r1 must reach AS6's networks K and L using the specified paths.