Lecture 22

Exercise 1: Which IGP would you use if your network included routers that only supported RIP? If you had a mixture of (modern) Cisco and Juniper Networks routers? If your company had a "Cisco only" policy?

1. RIP — for backwards compatibility
2. OSPF — for multi-vendor support
3. EIGRP — Cisco - only

**Exercise 2:** Does OSPF use UDP or TCP?

Mither: it uses __IP protocol #89__

{ Ether type →
 IP Protocol →
  Port Number →

these are different but have similar purposes (they indicate how a payload should be interpreted)

Exercise 3: A router with IP address 1.1.1.1 receives a Hello packet from 3.3.3.3 with the IP addresses 1.1.1.1 and 2.2.2.2 in the Neighbors field. What routers can you be certain are adjacent?

1.1.1.1

From 3.3.3.3
has seen
1.1.1.1
2.2.2.2
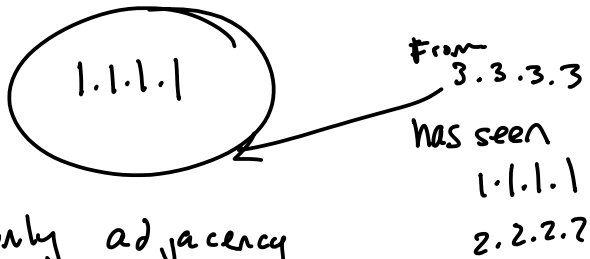
the only adjacency
we can be certain of
is that 1.1.1.1 knows that
3.3.3.3 is its neighbour.

2.2.2
1. ..
3. .
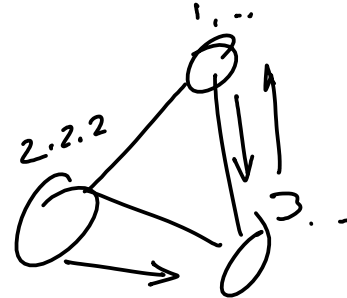
Exercise 4: Why would you not flood an LSA whose sequence number was the same as one already stored?

— this information has already been
sent to the neighbours.

Exercise 5: The standard maximum LSA age is one hour. What range of values would you expect to find in the LS Age field of an LSA packet?

possible: 0 - 3600

Exercise 6: Would you configure the fastest or the slowest routers with the highest priority?

fastest

Exercise 7: Find the routing table for host 1 for the network
with the link costs shown in the diagram below.
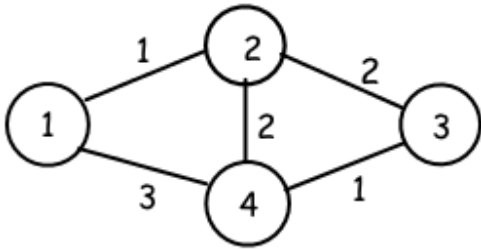
from	to	shortest path	total cost
1	2	1 → 2	1
1	3	1 → 2 → 3	3
1	4	1 → 4	3
		OR 1 → 2 → 4	3

routing table

1	(local)
2	2
3	2
4	4 or 2

interfaces connecting to
these routers

Exercise 8: Why would a router have multiple IP addresses?

a router forwards packets between
networks so it needs one
interface per network

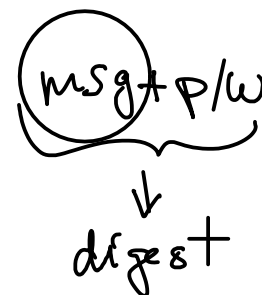**Exercise 9**: Which of these would go into the numerator and which into the denominator of a cost function?

data rate — denominator

delay — numerator

packet loss rate — numerator

MTU — denominator

maximum transfer unit } largest packet size w/o fragmentation

Exercise 10: How does the receiver authenticate the message? Why should the hash function be one-way?

(msg + p/w) ↓ digest

- receiver re-computes the hash value using the password & compares it to the received one.

- if the hash function could be reversed it be possible to
  - recover the password
  - generate spoofed messages. (fake, forged bogus)