# A small Test / repetition

Talk and discuss with your neighbour following questions

## Application layer:

* What is P2P?
* Which types of applications use P2P?
* What is the basic idea behind P2P?
* What are the challenges of the P2P architecture?

## Transport Layer:

* Which types of computers (equipment) is part of the transport layer communication?
* What is UDP short for?
* What is the purpose of UDP?
* Which types of application would prefer UDP as transport protocol?
* The header for the UDP how does it looks like.
* What do the different fields mean?
* What is TCP an short for?
* What is the purpose of TCP?
* Which types of application would prefer TCP as transport protocol?
* The header for the TCP how does it looks like.
* What do the different fields mean?
* How does the TCP protocol establish a connection?
* How do the TCP ensure that it deliver a reliable connection?
* How do the TCP handle congestion control?

## Network Layer:

* What are the important network-layer function(s)? In addition Explain forwarding.
* What is the content of a forward table? Moreover, how to use a forward table?
* What is the fundamental difference between a router and a packet switch (link-layer switch)?
* Take a closer look at fig.4.16 (p.358) and explain the meaning and use of  
  Version, Time to live, Header Length, Datagram Length, Upper-Layer Protocol
* How many bits are in an IPv4 address?
* What is a subnet?
* How can you find the net-id from a network address?
* Two organisation are given the address space 233.1.1.0/24 respectively 223.1.1.0/16  
  what are the network-ID and the broadcast address in the two net?
* Why is the world running out of IPv4-addresses?  
  How to solve this problem?
* What is a NAT-router?
* Describe the two ways a Host (Computer) can obtain an IP-address.
* Why do we not just all switch to IPv6?