T-110.350 Tietokoneverkot Tentti
Computer Networks Exam 30.8.2002

1 Lyhenteet ja käsitteet / Acronyms and terms (6p)

Kerro kuusi keskestä Internet-verkossa sovelluskerroksessa olevaa protokollaa (nimi ja lyhenne) ja kerro sovellusprotokollan tehtävä. Perustele valintasi (miksi keskeinen?)! Protokollan tehtävän kuvaamiseen ja valinnan perusteluun / protokolla voit käyttää max. kymmenen riviä.

List six essential protocols of application layer of Internet network (name and acronym) and describe the function of the protocol. Justify your choises (why essential?)! For functions and justifications / one protocol you can use max. 10 lines.

2 Osoitteet ja reititys / Addresses and routing (6p)

Valitse seuraavista väitteistä 12 oikeaa, ja kirjoita niiden tunnisteet aakkosjärjestyksessä vastauspaperiin. Oikeasta valinnasta saa 0,5 pistettä ja väärästä menettää 0.5 pistettä. Koko tehtävästä ei kuitenkaan voi saada negatiivisia pisteitä. Ole varma valinnoistasi!

Choose 12 correct claims and write their identifiers in alphabetical order to your answer paper. For correct choice, 0.5 points are given. Each wrong choice will give -0.5 points. It is not possible to get Negative points from the whole question. Be sure of your choices!

a. All subnets of a given network IP address must be contiguous in subnetting.

b. IPv6 offers limited broadcast that is a broadcast address for machines in one physical network.

c. Common hosts cannot have several IP addresses.

d. If a host moves from one network to another, its IP address must change.

e. IPv6 defines three different kinds of addresses.

f. IPv4 and IPv6 address has basically same internal hierarchy: net-part and

host-part.

g. Multicast is handled with broadcast in IPv6 networks.

h. Subnetting and supernetting are different ways to make address space last longer.

i. There are two kinds of multicast addresses: permanent and non-permanent.

j. IPv6 has own address for all routers of a network.

k. IP address host part defines an individual computer.

l. ARP protocol can only be used to find out IP address - Ethernet address bindings.

m. The sender can choose which route packet travels through autonomous systems because exterior gatway protocols allow policy routing.

n. Distance Vector Multicast Routing Protocol (DVMRP) divides Internet into regions and defines a responsible router for each region.

o. Large part of IPv6 address space is still unassigned.

p. Some multicast routing protocols deliver and update also routing information for unicast routing.

q. Core Based Trees (CBT) multicast routing protocol uses a data-driven paradigm. The data-driven transmission means that data is send only those who has ordered it.

r. An IPv4 address with all ones means "this".

s. It is possible to use IPv4 addresses as such in IPv6 networks.

t. IPv6 uses ICMP for address discovery.

u. A host in IPv6 address can suggest address for itself.

v. Both IPv6 and IPv4 has a special address that can only be as a source address.

w. Subnet mask must be noticed when routing decision is done.

x. IPv4 does not offer possibility to fetch address for a discless host from other physical network than where the host is located.

y. Exterior gateway protocols do not exchange metrics for distances between autonomous systems.

3 Uutuudet / New things(6p)

a.

Selitä lyhyesti, mitä eroja on proaktiivisessa ja reaktiivisessa reitityksessä. (2p)

Tell briefly main differences between proactive and reactive routing. (2p)

b.

Kuvaile lyhyesti kaksi tietoturvauhkaa, jotka kohdistuvat Mobile IP:n Binding Updateihin.

Explain briefly two security threads that concern Binding Updates of Mobile IP. (2p)

c.

Kirjoita auki ja selitä termi PHB. (2p)

Write open and explain the term PHB. (2p)

4 Essee / Essay (12p)

Kirjoita vastauksesi esseemuotoisena. Esseessä arvostellaan paitsi faktat ja perustelut, myös rakenne ja luettavuus.

Mitä protokollia on käytetty kuvissa 1 ja 2 (protokollien koko nimet pitää antaa, pelkkä lyhenne ei riitä). Vertaile kuvien protokollien palveluita kerros kerrokselta toisiinsa. Kummassakin kuvassa data on

10101010101010101010101010101010101010.

Write an essay. The essay is graded based on the presented facts and justifications as well as the structure and readability of the essay.

What protocols are used in figures 1 and 2 (full name must be given, acronym is not enough). Compare together the services of the protocols in figures layer by layer. In both figures, the data is

10101010101010101010101010101010101010.