

## ETSF05

### Svar till övningarna ur textboken:

#### Kap 6

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- a. 21 bitar
- b. 100,000 frames/s.
- c.  $1/100,000 = 10 \mu\text{s}$ .
- d.  $(100,000 \text{ frames/s}) \times (21 \text{ bits/frame}) = 2.1 \text{ Mbps}$
- e.  $20/21 = 95\%$

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#### Kap 11

17.  $(101 \bmod 32) = 5$

18b. Go-Back-N ARQ send window = 25 - 1 = 31 receive window = 1

31. 8.151 s

#### Kap17

11.

STS-3  $\rightarrow 8000 \times (9 \times 3 \times 86) \times 8 = 148.608 \text{ Mbps}$

STS-9  $\rightarrow 8000 \times (9 \times 9 \times 86) \times 8 = 445.824 \text{ Mbps}$

STS-12  $\rightarrow 8000 \times (9 \times 12 \times 86) \times 8 = 594.432 \text{ Mbps}$

12. Pga interleavingen "demultiplexera" till STS-1 och "multiplexera" till STS-36.

Multiplexing/Demultiplexing görs byte för byte så det tillkommer ingen overhead.

13. Det behövs 4kbps=500kBps extra. 8000 ramar per sekund. 500 av 8000 ramar måste använda byte H3.

14. 10 kbps går "tomt".  $10000 / 8 = 750 \text{ bytes}$ . 750 av 8000 ramar ska ha byten efter H3 tom.

#### Kap 18

19.  $[(2,000,000/8)/47] \approx 5319.15$ .

20.  $47/53 \approx 89\%$ .

21.

a. Padding = 33 bytes (H + Data + Padding + T = 0 mod 44)

b.  $(4 + 47787 + 33 + 4) / 44 = 1087$

c. 1087 cells.

28.

a. AAL1  $\rightarrow 53 - 5 - 1 = 47$

b. AAL2  $\rightarrow 53 - 5 - 1 - (\text{CS header}) < 47$

c. AAL3/4  $\rightarrow 53 - 5 - 4 - (\text{CS header}) < 44$

d. AAL3/4  $\rightarrow 53 - 5 - (\text{CS header}) < 48$

## Kap 19

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- a. 2340:1ABC:119A:A000::0
- b. 0:AA::119A:A231
- c. 2340::119A:A001:0
- d. 0:0:0:2340::0

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- a. 0000:0000:0000:0000:0000:0000:0000:0000
- b. 0000:00AA:0000:0000:0000:0000:0000:0000
- c. 0000:1234:0000:0000:0000:0000:0000:0003
- d. 0123:0000:0000:0000:0000:0000:0001:0002

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- a. Link local address
- b. Site local address
- c. Multicast address (permanent, link local)
- d. Loopback address

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- a. Unspecified address
- b. Mapped address
- c. Provider based address with the address registered through INTERNIC (North American registry).
- d. Provider based address with the address registered through RIPNIC (European registry).
- e. Provider based address with the address registered through APNIC (Asian/Pacific registry).

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- a. FE80:0000:0000:0000:0000:0000:0000:0123 or FE80::123
- b. FEC0:0000:0000:0000:0000:0000:0000:0123 or FEC0::123

36. FF02: < Group ID >

37. 581E:1456:2314:ABCD:0000.