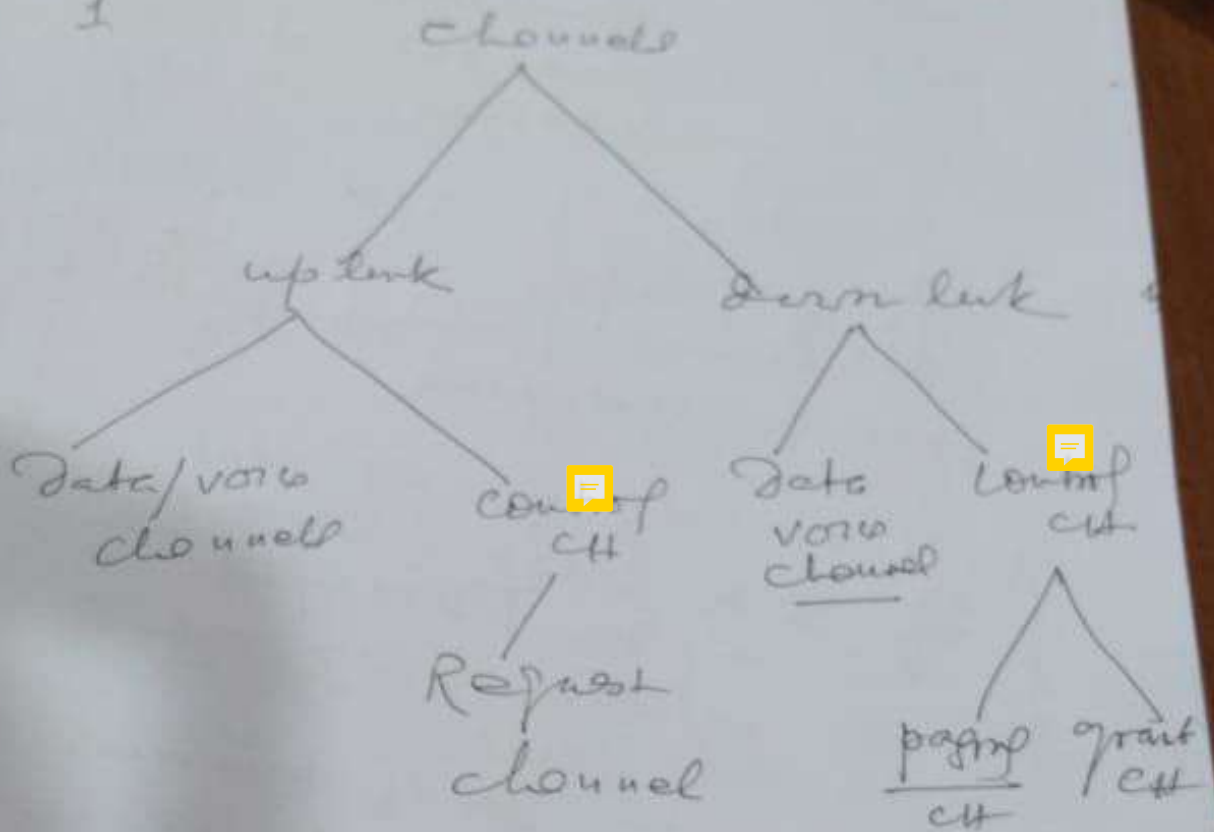
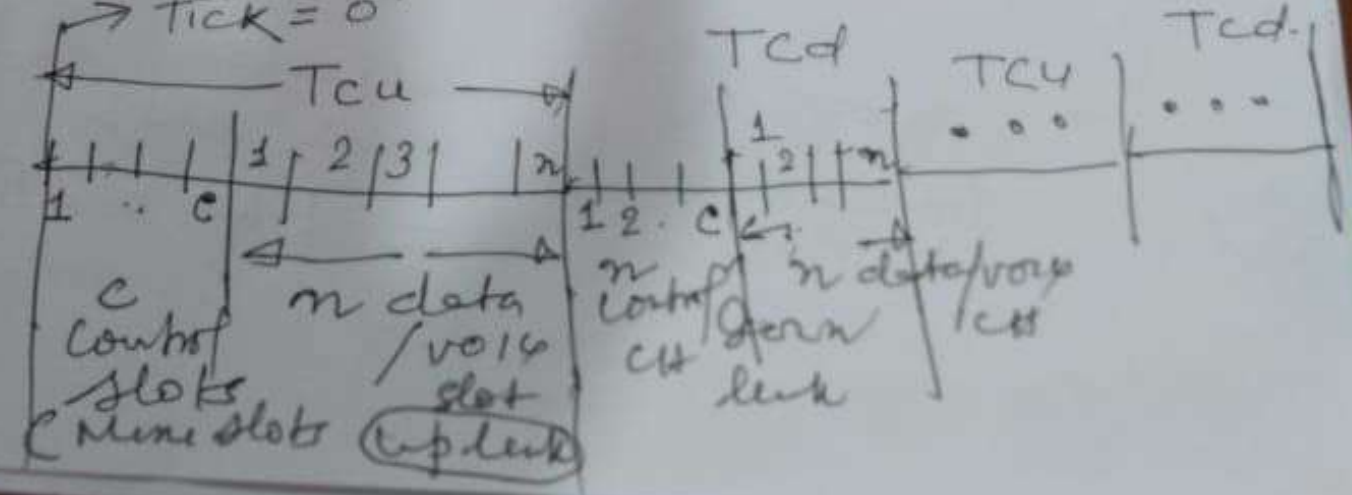


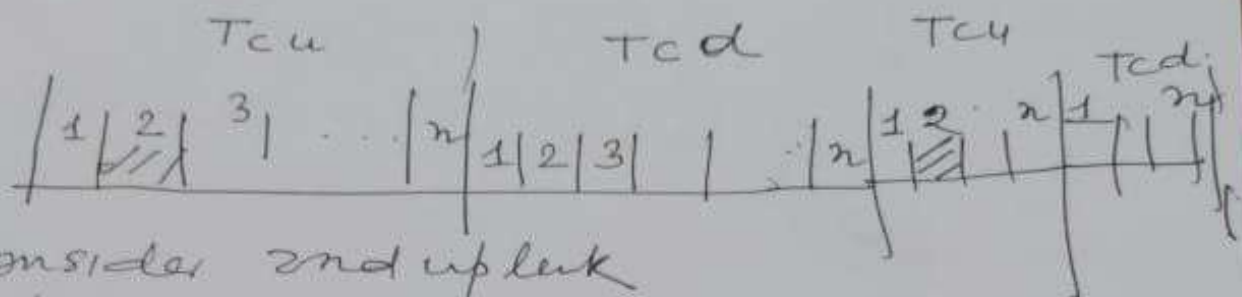
First Page-04, 05 of previous class



2. Control channel creation



Problem: Total B.Wt = 4 MHz
 Modulation = 4-QAM
 data rate of each
 channel = 10 kbps



- Consider 2nd uplink
 channel

- Now only one ST slot out
 of $2n$ slot ($2n = \text{Total uplink} + \text{downlink}$)
 - In FDMA/FDD one slot of ST out of n slots
 - BW of transmission in each slot = BW_u

$$= \frac{BW_t}{2}$$

now the bandwidth of
 transmissi. in each slot

$$= BW_t = 2 BW_u$$

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- (i) Total BW = 4 MHz (uplink + downlink)
(ii) Total Band rate
brt = 4×10^6 baud/sec
(iii) Modulation is QAM
 $V = 4$

(iv) Total digital data rate (uplink + downlink)
@ drt = $4 \times 10^6 \times \log_2 4$ bps
= 8×10^6 bps.

(v) Average data rate of each channel = $\frac{8 \times 10^6}{2n}$

(As each slot is getting only one channel out of 2n slots)

(vi) $\frac{8 \times 10^6}{2n} = 10 \times 10^3$
 $n = \frac{4.8 \times 10^6}{2 \times 10^4}$

= 400

Same as TDMA/FDD