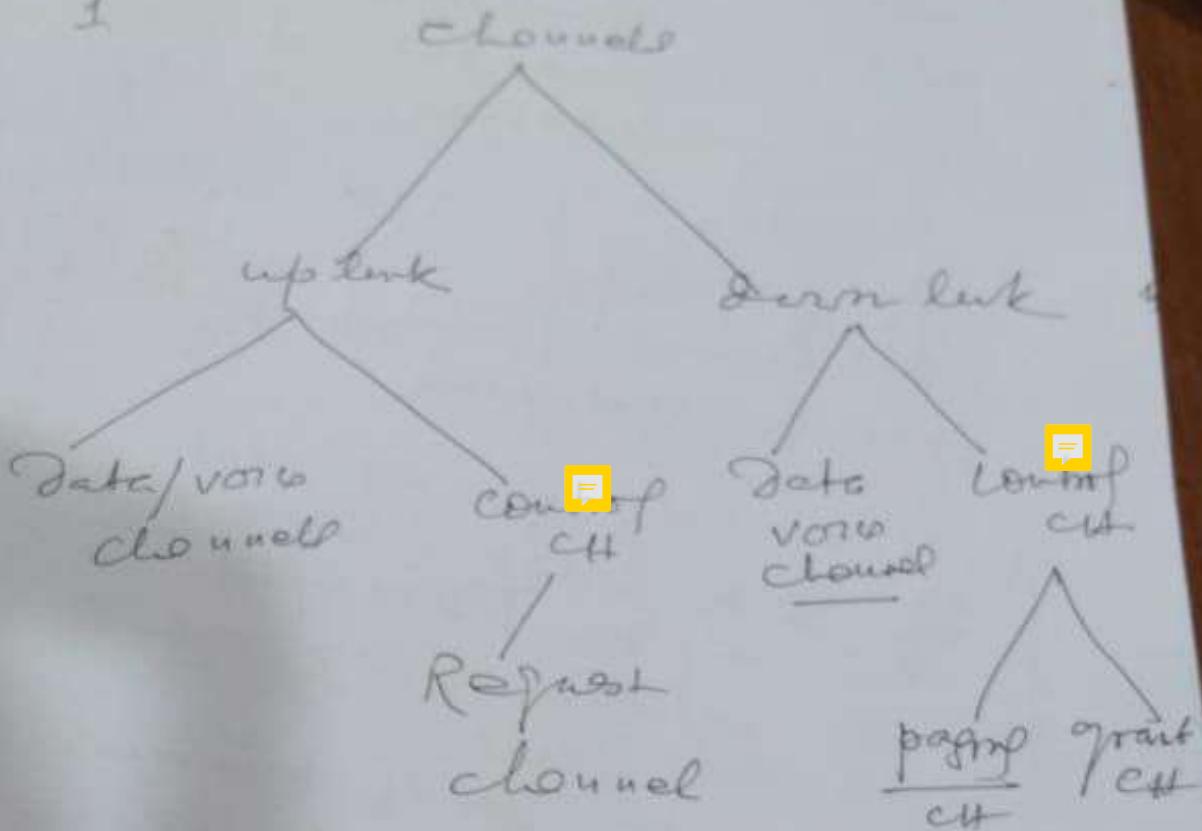
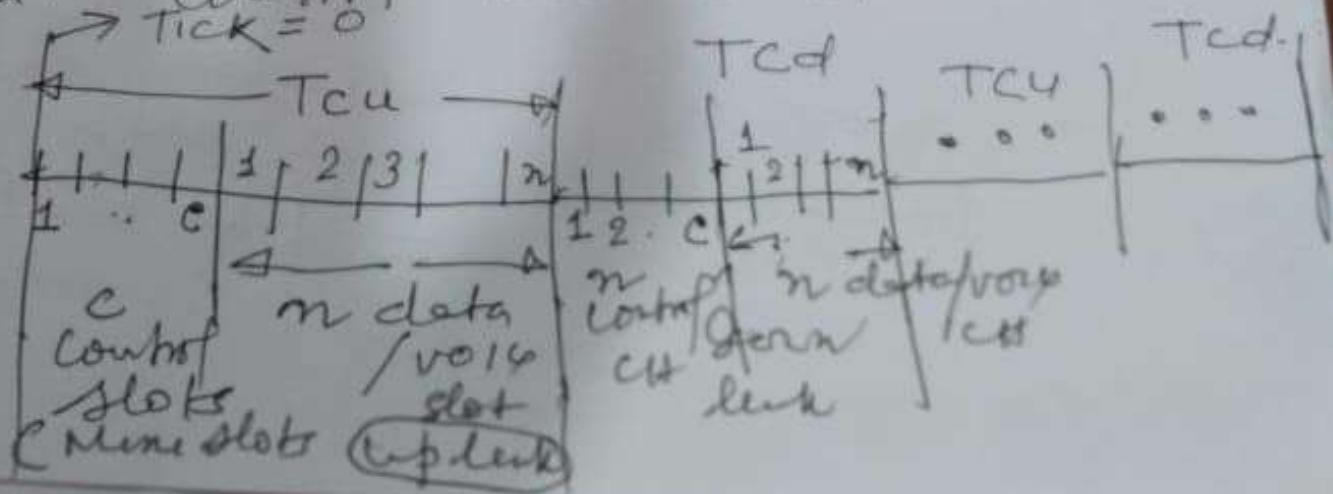


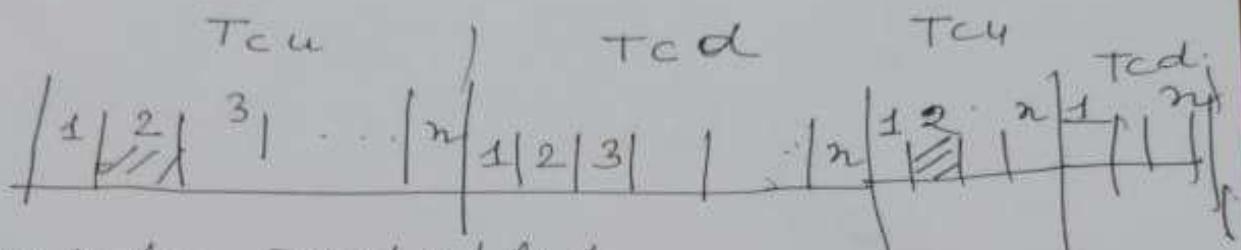
1.



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 2^n slot ($2^n = \frac{\text{Total uplink}}{\text{down}}$)
- In FDMA/FDD one slot of n slots of ST out of n channels
- BW of transmission in each slot = BW_u

$$= \frac{BWT}{2}$$

Now the bandwidth of transmission in each slot

$$= BWT = 2BW_u$$

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(a) Total BW = 4 MHz (uplink + downlink)

(b) Total Band rate
BRT = 4×10^6 banch/sec

(c) Modulation is QPSK

$$V = 4$$

(d) Total digital data rate (uplink)
@ d/r/c = $4 \times 10^6 \times \log_2 4$ banch/sec
= 8×10^6 bps.

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

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

(f)

$$\frac{8 \times 10^6}{2^n} \approx 10 \times 10^3$$
$$n = \frac{4.8 \times 10^6}{2 \times 10^4} \approx 240$$

$$= 400$$

Same as FDMA / PDD