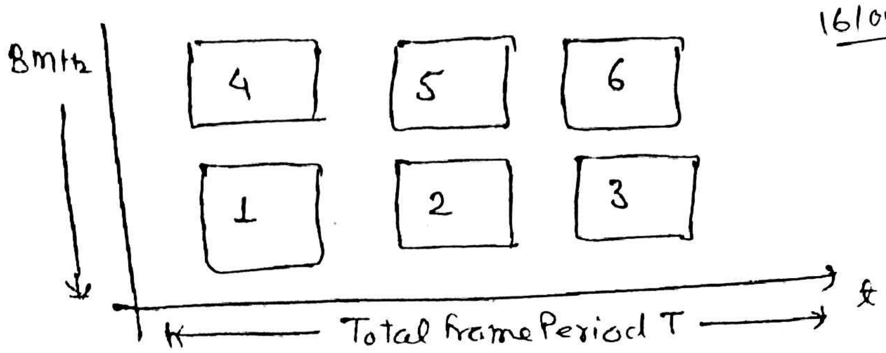
gitat-
echnique.

16/04/22.



→ CDMA ←

In all three multiple access technique some resource is shared.
Basically the systems are two types-

→ PA. ←

Preassigned Access

If resources allocated to each earth station fixed in advanced then multiple access technique called Preassigned Access (PA).

→ DA ←

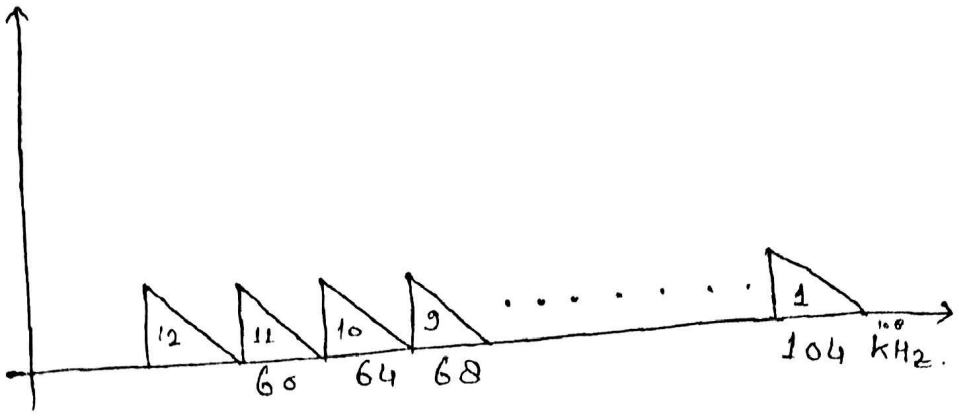
Demand access.

If resource is allocated as needed, depending upon changing traffic conditions then multiple access technique called Demand access. (DA).

FDMA - DA → It is widely used in VSAT System.
TDMA - DA → It is widely used in Mobile and VSAT System
CDMA - DA → It is used to reduce no. of signals in the transponder any one time.

Frequency Division multiple Access :- In the previous days- Frequency division multiple access techniques was used But now a days TDMA & CDMA is used. Frequency division multiple access was the first multiple

access technique used in satellite communication.



The frequency range 300Hz – 3400Hz

.. 12 channels are stacked to the frequency range 60 - 108 kHz. Guard band (spacing between channel) is 4 kHz.

The 12 channels occupying 60 - 108 kHz are known as Basic group.

.. Five basic groups are combined together to performed supergroup. In the supergroup.

Total No of channels = 5 × 12
= 60.

Total Bandwidth = 60 × 4 kHz
= 240 kHz.

Thus five basic group can be shifted to range 60 - 300 kHz frequency to make a 60 channel.

.. supergroup occupying a base band bandwidth of 240 kHz.

.. The supergroup can be stacked in the baseband to make up single signal that consist of 300, 600, 900 or 1800 multiplexed telephone channels. 300, 600, 900, or 1800 voice channels are stacked together and modulated by single carrier

Now if $N > 24$, →

The amplitude is hard limited to lies between ± 3.16 times rms value = 10 dB

& If $N < 24$ → In that case,

6.5 times the rms value.

= 18.8 dB.

The bandwidth calculations required for above values can be done by using -

$$B_{RF} = 2[l_g \cdot \Delta f_{rms} + f_{max}]$$

⇒ Loading Factor L :- ** Loading factor L can be defined as

$$L = 20 \log l_g$$

$$= 15 + 10 \log_{10} N \quad \text{if } N > 240$$

$$= -1 + 4 \log_{10} N \quad \text{if } 12 \leq N \leq 240$$

& Frequency deviation Δf given by $= l_g \cdot \Delta f_{rms}$

For link performance calculations the rms frequency deviation Δf_{rms} should be used in the rms test tone deviation. This is rms carrier deviation

FDMA ⇒ FDM / FM / FDMA

FDM → Frequency division multiplexing

FM → Then Frequency modulation

FDMA = Frequency division multiple Access.

FDMA ← SCPC → Now FDMA is not used if some where used then used only as a single carrier per chann