(b) Explain the different types of Non co-channel interference.

Ans:- The different types of non co-channel interference are listed below:-

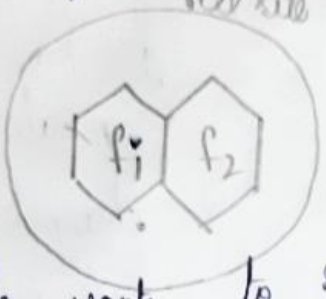
1) Adjacent channel Interference:- It can be eliminated

by frequency assignment.

Cell site 1

$f_1 \rightarrow$ 800-850 MHz

$f_2 \rightarrow$ 851-890 MHz



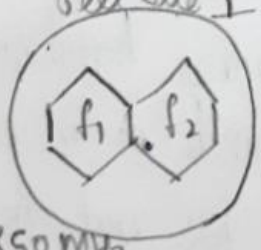
$f_1 \rightarrow 850$ MHz

$f_2 \rightarrow 851$ MHz

When the mobile wants to respond for f_1 of 850 MHz but because of interference and moving nature of mobile it will operate for f_2 of 851 MHz is called adjacent channel interference.

2) Next channel Interference :- Next channel interference affecting a particular mobile unit cannot be caused by transmitters in the common cell site, but must originate at several other cell sites., if the system is not designed properly.

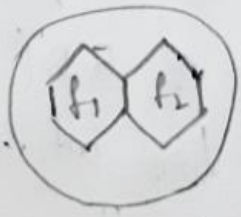
Cell site I



$f_1 = 850$ MHz

$f_2 = 860$ MHz

Cell site II



$f_1 = 851$ MHz

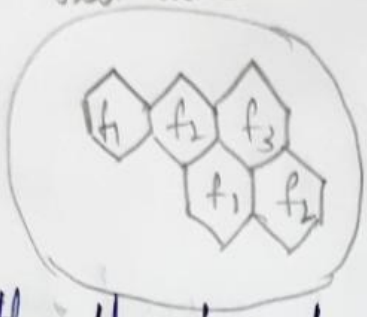
$f_2 = 861$ MHz

3) Neighbouring channel Interference :- The channels which are several channels away from the next channel will cause interference with the desired signal.

Cell site 1

$f_1 \rightarrow 850\,MHz$

$f_2 \rightarrow 860\,MHz$

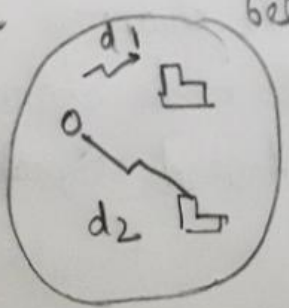


When the mobile operates for f_1, then if it wants to operate for f_2 of neighbouring channels will cause interference with the desired signal. i.e a fixed set of serving channels is assigned to each cell site.

Near End - Far end Interference :-

In one cell :- The mobiles in a given cell are usually moving some units are close to the cell site and some or not. The close in mobile unit has a strong signal which causes adjacent channel interference At the situation, near end far end interference can occur only at the reception point in the cell site.

→ If a separation of 5 B (five channel bandwidths) is needed for two adjacent channels in a cell inorder to avoid the near end far end interference.



Similarly, this can be explained in cells of two systems.