

MOBILE COMPUTING

8th SEM - ECE

Q.2. Strategy to improve cellular capacity:-

a) Cell Sectoring:-

Replacing a single-omni directional antenna at the base station by several directional antennas each radiating within a special sector.

b) Cell Splitting:-

Process of subdividing a congested cell into smaller cells each with its own base-station and a corresponding reduction in antenna height. It increases capacity of cellular system.

3. Mobility management refers to the operations required for tracking the mobile and restructuring existing connections as it moves. Mobility management consists of location as well as hand-off management.

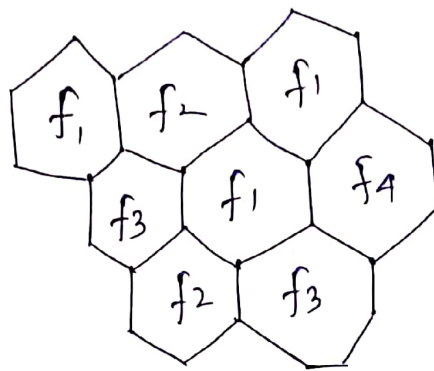
Location Management refers to the activities a wireless network should perform in order to keep track of where the mobile is.

Handoff management handles the messages required to make the changes in the fixed networks to handle the changes in location during a ongoing communication.

Q.4 . Spatially reuse the available spectrum so that same spectrum can support multiple users separated by a distance is called frequency reuse.

Expression:-

$$N = i^2 + j^2 + ij$$



→ frequency reuse.

Q.6 . There are two channel assignments:-

a.) Fixed channel Assignments:-

1.) Each cell is permanently allocated predetermined group of channels. Any call attempt within cell can only served by unused channels.

2.) If all channels are occupied, the call is blocked and subscriber does not receive service.

b.) Dynamic channel Assignments:-

1.) Voice channel are not allocated permanently

- ii) Entire pool of frequency channel lies with MSC and each time a call request is made, the serving base station requests a channel from MSC.
- iii) MSC allocates frequency channels of dynamic basis if that frequency channel is not presently in use in the cell or any other cell which falls within the minimum restricted distance of frequency reuse to avoid co-channel.

Q.5

whereas there is Doppler frequency shift is usually different from path to path when signal arrives at wireless receiver, hence transmitted signal will experience doppler spreading and is seen as spectral widening or broadening in received signal power spectrum.

$$\text{Coherence Bandwidth} \propto \frac{1}{\text{Doppler Spread}}$$

- Q.7 i.) a.) Near Far effect is one of main problem in wireless communication.
- b.) Physical deployment & radio coverage modeling.
- ii.) Generally 800MHz for mobile communication
300MHz to 300GHz for 4Wave communication.
- iii.) Cell refers to coverage area usually
Consists of BSC.
Various shapes related to cell depends
on $i^2 + j^2 + ij$ are hexagonal etc.
- iv.) Expression used to locate co-channel cells:-
 $i^2 + j^2 + ij$