Global System for Mobile Communication (GSM)

Unit - III

Introduction - GSM

- Digital Mobile System presently used in India
- Important feature – provide **Data Service** in addition to Voice service
- Operates in 4 different frequencies
- Mostly 900Mhz or 1800Mhz
- US and Canada – 850Mhz and 1900Mhz
- Scandinavia – 400Mhz or 450Mhz (for 1st Gen. rarely used)
- In 900Mhz – 890 – 950Mhz uplink and 935-960Mhz downlink

GSM Services

- GSM offers 3 main Services:
- Bearer Services
- Teleservices
- Supplementary Services

Bearer Services

- Send / Receive data from/to remote computers or mobile phones
- So called as “Data Services”
- Also transparent data services to other networks – PSTN, ISDN – 300bps to 9600bps
- Use lower 3 layers of OSI
- Supports SMS, email, voice mailbox, internet access
- Provide option to execute remote apps
- Data transfer upto 9.6kbps

Contd...

- Provides transparent / non-transparent services
- Use synchronous / asynchronous mode of data transmission
- Transparent bearer services
- Use physical layer – constant delay and throughput if no error
- FEC used to increase quality of data transmission
- Non-transparent bearer services
- Use second and third layer – implement error & flow control
- Use transparent bearer services + Radio Link Protocol (RLP)
- Contains High Level Data Link Control

Teleservices

- GSM provides non-voice teleservices also
- **Telephony**
- provides high quality digital voice Tx
- bandwidth – 3.1Khz of analog phone
- Special codecs used (usually used for data in Tx modem, fax)
- **Emergency Number**
- Same area inside area, free of cost
- All service provider should give
- Connects automatically to closest emergency centre

Contd...

- Short Message Services (SMS)
- Tx of text message upto 160 characters
- Use signalling channels
- Duplex system to send/receive SMS
- FAX
- Using modem, fax data transmitted over analog telephone N/W

Supplementary Services

- User identification
- Call redirection
- Forwarding ongoing calls
- ISDN features :
- Multiparty communication