MOBILE COMPUTING

UNIT III

2-MARKS

1. **What is 1G System ?**

   1G networks (NMT, C-Nets, AMPS, TACS) are considered to be the first analog cellular systems, which started early 1980s. There were radio telephone systems even before that. 1G networks were conceived and designed purely for voice calls with almost no consideration of data services (with the possible exception of built-in modems in some headsets)

2. **What is GSM?**

   GSM (Global System for Mobile communication) is a digital mobile telephony system that is widely used in Europe and other parts of the world. **GSM** uses a variation of time division multiple access (TDMA) and is the most widely used of the three digital wireless telephony technologies (TDMA, **GSM**, and CDMA).

3. **What are all the services offered by the GSM?**

   1. Tele service
   2. Bearer services
   3. Supplementary services

4. **What is Bearer Service ?**

   In telecommunications, **Bearer Service** or data **service** is a **service** that allows transmission of information signals between network interfaces. These **services** give the subscriber the capacity required to transmit appropriate signals between certain access points, i.e. user network interfaces.

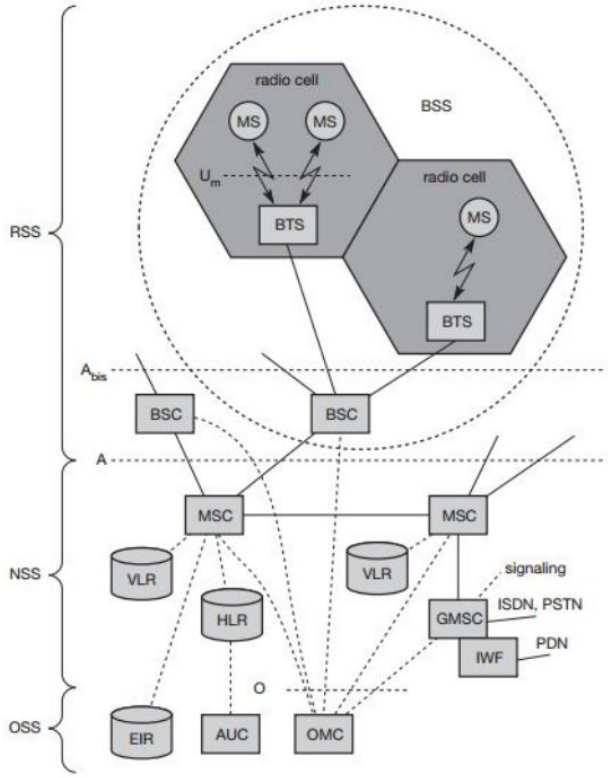
5. **List Impotent Supplementary services offered by GSM?**

   1. User identification
   2. Call forwarding
   3. Automatic call back
   4. Conferencing with up to 7 participants

6. **What are all the sub systems available in GSM?**

   1. Radio SubSystem.
   2. Network and Switching SubSystem.
   3. Operation SubSystem.

7. Draw the architecture of GSM?



- RSS=radio subsystem
- NSS=network and switching subsystem
- OSS=operation subsystem (OSS)
- MS = Mobile Station
- BTS=base transceiver stations.
- BSC=Base Station Controller
- MSC=Mobile services switching center
- HLR=Home location register
- VLR=Visitor location register
- OMC=Operation and maintenance center
- AuC=Authentication centre
- EIR=Equipment identity register

8. What is RSS?

1. RSS is stands for Radio SubSystem
2. RSS comprises all radio specific entities

9. Mention the advantages of GSM?

1. Communication
2. Total Mobility
3. Worldwide Connectivity
4. High Capacity
5. High Transmission Quality
6. Security Functions

10. What does the SIM Card Contains?

1. Personal Identity Number (PIN)
2. PIN Unblocking Key (PUK)
3. Authendication Key
4. International mobile subscriber Identity (IMSI)
5. Card-type
6. Serial Number
7. A list of subscribed services

11. What is GPRS?

General Packet Radio Services (**GPRS**) is a packet-based wireless communication service that promises data rates from 56 up to 114 Kbps and continuous connection to the Internet for mobile phone and computer users.

12. Name the security services offered by GPRS?

1. Authentication
2. Access Control
3. User Identity Confidentiality
4. User Information Confidentiality

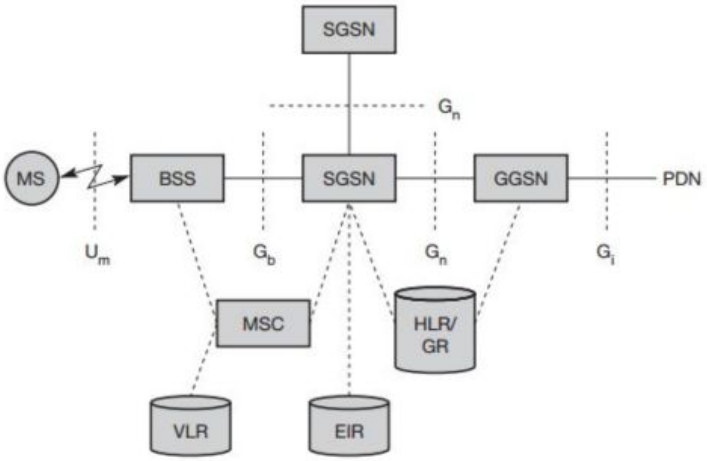
13. How the GPRS is cheap when compare to GSM in internet service?

GPRS Uses the billing system based on how much data is transferred not how much time the connection was on in GSM. So the user must pay for on the data not the connection time. This make the GPRS cheaper than GSM in internet services.

14. List the types of GPRS Support Nodes (GSN)?

1. Gateway GPRS support Node (GGSN)
2. Serving GPRS support Node (SGSN)

15. Draw the architecture of GPRS



- MS = Mobile Station
- BSS=Base Station Subsystem
- SGSN=Serving GPRS Support Node
- GGSN= Gateway GPRS Support Node
- PDN= Packet Data Networks
- GR=GPRS Register
- MSC=Mobile Switching Center
- HLR=Home Location Register
- VLR=Visitor Location Register
- EIR=Equipment Identity Register

16. What is UMTS?

UMTS (**Universal Mobile Telecommunications System**) is a so-called "third-generation (3G)," broadband , packet -based transmission of text, digitized voice, video, and multimedia at data rates up to and possibly higher than 2 megabits per second (Mbps), offering a consistent set of services to mobile computer.

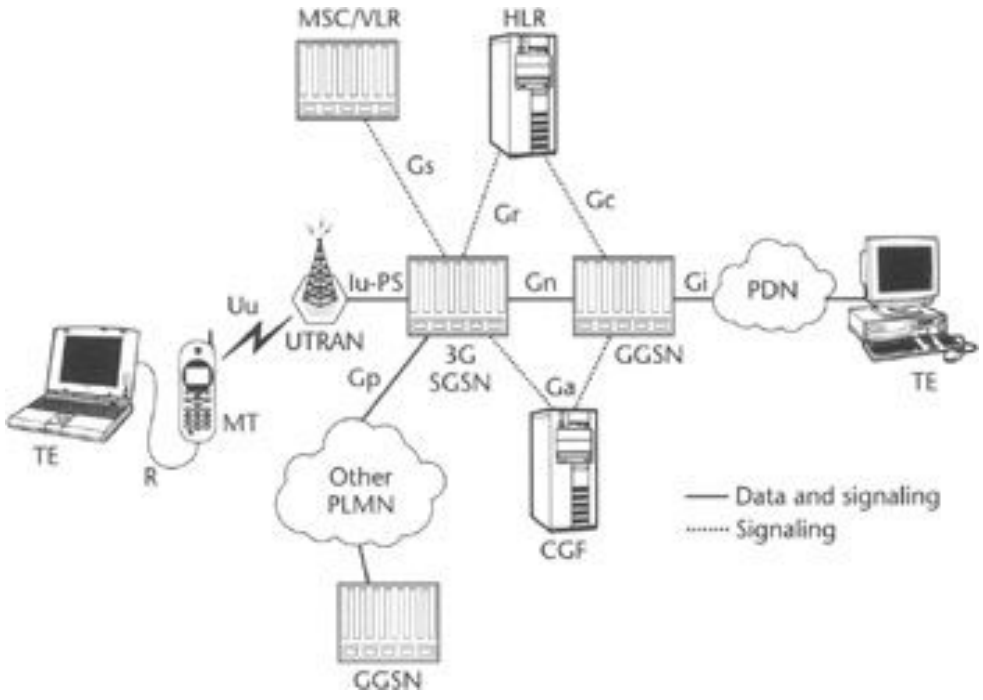
17. Mention the components of UMTS?

1. User Equipment (UE)
2. UTRA Network (UTRAN)
3. Core Network (CN)

18. What are all the functions provided by RNS in UMTS?

1. Radio Channel Chiphering
2. Deciphering
3. Handover Control
4. Radio Source Management.

19. Draw the architecture of UMTS?



20. What is 4G LTE?

An acronym for Long Term Evolution, LTE is a 4G wireless communications standard developed by the 3rd Generation Partnership Project (3GPP) that's designed to provide up to 10x the speeds of 3G networks for mobile devices such as smartphones, tablets, netbooks,

notebooks and wireless hotspots. 4G technologies are designed to provide IP-based voice, data and multimedia streaming at speeds of at least 100 Mbit per second and up to as fast as 1 GBit per second.

PART - B

1. Explain in detail about,
    a. Generations of Mobile Communications. (8).
    b. Services offered by the GSM System. (8).
2. Explain in detail about,
    a. Services offered by the GSM System. (8).
    b. GSM Architecture (8).
3. Explain in detail about,
    a. GSM Architecture (8).
    b. Security System in GSM (8).
4. Explain in detail about,
    a. GPRS System (12).
    b. Compare GPRS and EDGE Systems (4).
5. Explain in detail about UMTS System (16).