

Q1: Define and explain in your own words Radio Network Controller. Explain its main elements.

Ans: The GPRS core Network is the central part of the general packet radio service (GPRS) which allows 2G, 3G and WCDMA mobile networks to transmit IP packet to external networks such as the internet. The GPRS system is an integrated part of the GSM network switching subsystem.

The network provides mobility management session management, and transport for internet protocol packet services in GSM and WCDMA networks. The core network also provides support for other functions such as billing and lawful interception. It was also proposed at one stage to support packet radio services in the US-D-AMPS TDMA system however in practise all of these networks have been converted to GSM so this option has become irrelevant.

Radio Network Controller :-

A radio network controller (RNC) is a governing element in the UMTS radio access network (UTRAN) and is responsible for controlling the Node Bs that are connected to it. The RNC carries out radio resources management, some mobility management functions and encrypts data before it is sent to mobile from the mobile. The RNC connects to the circuit switched core network through the **media gateway (MGW)** and to the SGSN switched core network.

A **media gateway** is a translation device or services that convert a media stream between disparate telecommunication technologies such as POTS, SS7, Next Generation Networks (2G, 2.5G) and (3G radio access networks) or private branch exchange (PBX) systems. Media gateway enable multimedia communication across packet network using transport protocols such as **Asynchronous Transfer Model (ATM)** and **internet Protocol (IP)**.

Q2: (A) What are the management functional areas in a Telecommunication Management Network.

Ans: Management of security - monitor and control the availability of security facilities.

Security Management:-

is concerned with two aspects of system security. The management of security facilities and to report which required the abilities to monitor and control the availability of security facilities and to report security threats or breaches.

Performance Management:-

Address the availability of information that allow to determine network and system load under both natural and artificial conditions. It also support to collection planning activities. Performance management need access to a lot of network information and an important issues is to provide the latter with a minimum impact on the managed network.

### Accounting Management:

deal with the collection of accounting information and its processing for charging and billing purpose. It should enable accounting limits to be set and costs to be combined when multiple resources are used in the context of a service. The key requirements are event based operation in particular logging and a generic usage metering framework.

### Fault Management:

Addressing the generation of error specific notification (alarms) the logging of error notification at service and the testing of network resources in order to trace and identify faults. Management system should undertake alarm surveillance activities (analysis, filtering and correlation).

### Q2(B) Explain how TMN is applicable in Mobile Network?

Ans:

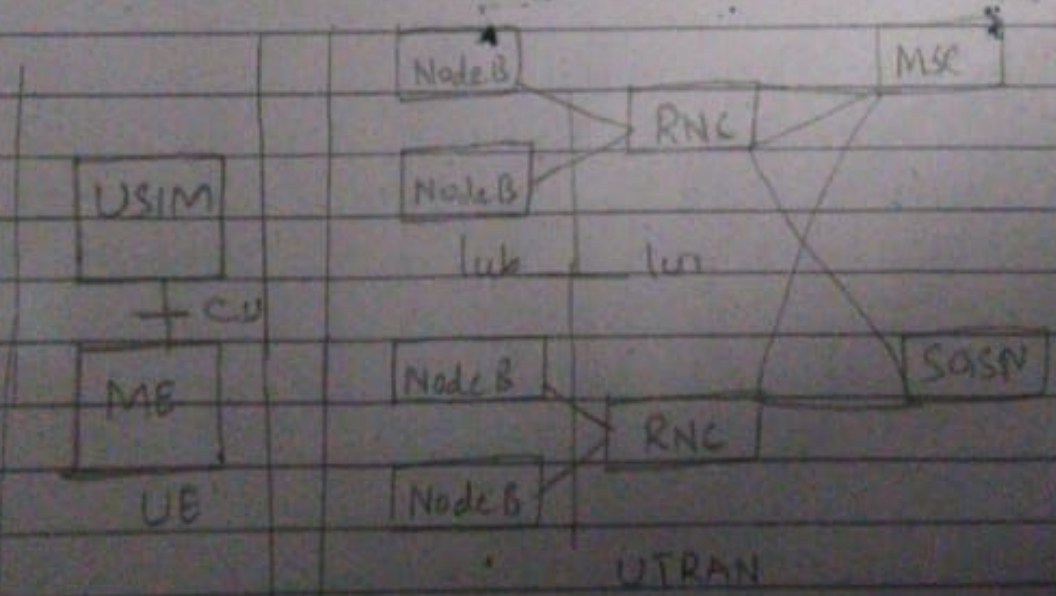
A TMN is a support network that interfaces to the telecommunication network to provide the means

(3)

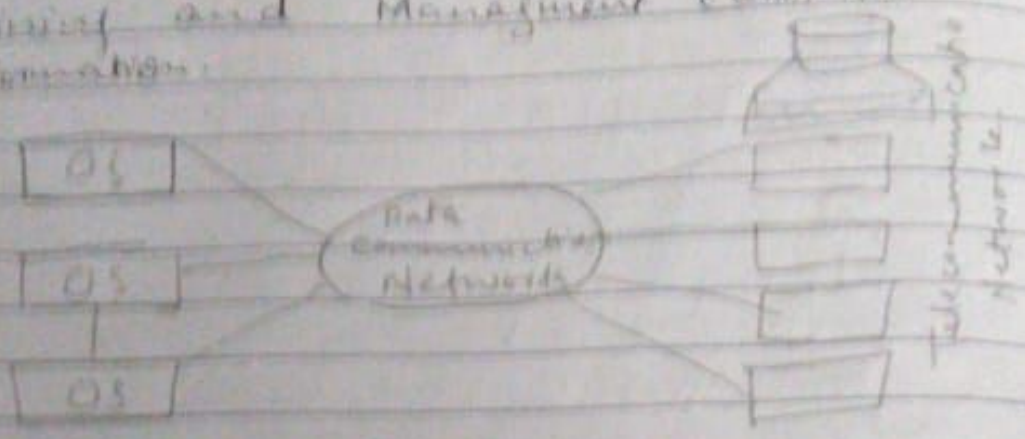
## UMTS Terrestrial Radio Access Network

is a network of terrestrial elements for the network and equipment that connects mobile handsets to the public telephone network or the internet. It contains the base stations which are called Node B's and Radio Network Controller (RNCs) which make up the UMTS radio access network.

This communications network, commonly referred to as 3G (for 3rd generation) wireless mobile communication technologies) can carry many traffic types for real time Circuit Switched to IP based Packet Switched. The UTRAN allows connectivity between the UE (user equipment) and the core network.



for transporting and processing information. Operations Administration, Maintenance Provisioning and Management (OAM&P) information.



Reviews some of the guiding principle of IMN that were applied or consciously not applied, to the development of CrSM network management. The organization of the work within the sub technical committee and the resultant organization of the specification are described. The article also introduces the model for the management of a CrSM network as well as some of the philosophy behind this model. Certain aspects of this model are described in greater detail to illustrate its use.

Q31-

Explain Master Plan for a information System?

Ans:-

### Planning for Information system:-

The complexity of the information resources environment suggest that planning is vital to success.

The plan describe the structure and content of the information system and how it is to be developed.

The organization's strategic plan should be the basic for the MIS strategic plan.

The overall responsibility of IS planning is the responsibility of chief information officer (CIO)

### Master Plan

#### Specific Plan:-

Hardware acquisition Schedule  
Purchased software schedule  
System Software  
Application Software  
Application development schedule.

### Forecast of developments Affecting plan:-

Hardware and software technological availabilities should be forecasted

with expected impact on existing IS

Methodology changes should be forecasted.

### Planning for Information Systems:-

The complexity of the information resources.

Current capabilities:

- \* Inventory of
  - \* Hardware
  - \* Software (system software DBMS)
  - \* Application system (classified on the basis of function system).

\* Analysis of:-

- \* Expense
- \* Hardware Utilization
- \* Software Utilization
- \* Personal Utilizations

Status of project purpose.

Assessment of strengths and weakness.