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

(Ans). RNC (Radio Network Controller)

⇒ The network element responsible for radio resources control of UTRAN.

⇒ It interfaces CN (normally to one MSC and one SGSN).

⇒ Terminates RRC (Radio Resources Control) Protocol that defines the messages and procedures between mobile and UTRAN.

⇒ It logically corresponds to the GSM BSC.

Its main Elements

The RNC is a functional element of the UMTS RNS (Radio Network System)

Which controls a number of Node Bs.

Responsibilities of the RNC include:

- ⇒ Radio resource management and control.
- ⇒ Air interface Security.
- ⇒ Mobility Procedures
- ⇒ System Synchronization.

Q₂.

PART a). What are the management functional areas in a Telecom Management Network?

(Ans). TMN management Services are classified by OSI System management functional area.

These areas are the five OSI application function.

1. Security Management:

⇒ Management of Security - monitor and control the availability of Security facilities.

⇒ Security of Management.

⇒ Authenticate management applications and users

⇒ Support access control to management information.

2. Performance Management:

⇒ Determine network and system load.

⇒ Collection of performance information for Capacity planning.

⇒ Needs a lot of information, care needed not to overload network with management traffic.

⇒ Requirements.

3. Accounting Management :

- ⇒ Usage Metering for charging and Billing.
- ⇒ Set accounting limits.
- ⇒ Combining resource usage for Complex Service.
- ⇒ Requirements :
 - Event-based operation. in Particular logging.
 - A generic usage metering framework.

4. Fault Management :

- ⇒ Generation of Error Notifications (alarms)
- ⇒ logging of notifications at source.
- ⇒ Network Element Testing.
- ⇒ Requirements :
 - Event based operation (including logging)
 - Generic set of alarms

5. Configuration Management :

Q₂

PART b). Explain how TMN is applicable in Mobile Network?

- (Ans)
- Provide a framework for telecommunications network and Service management.
 - Management goes beyond networks and network element to include managing Services Provided by Service Providers as well as business management.
 - The telecommunication Management Network is a protocol model defined by ITU-T for managing open System in a Communication network.
 - TMN that were applied, or consciously not applied to the development of GSM network management. The organization of the work within the Sub-technical Committee and the resultant organization of the Specifications are described. The article also introduces the model for the management of a GSM network, as well as some of the philosophy behind this model.

Q3 Explain Master Plan for an Information System?

(Ans)

Master Plan

Information System goals, objectives, and architecture:

- ⇒ Organizational goals, objectives, and strategies.
- ⇒ External environment (industry, government, regulation customers, and suppliers).
- ⇒ Internal organizational constraints such as management philosophy.
- ⇒ Assumptions about business risks and potential consequences.
- ⇒ Overall goals, objectives, and strategy for the information system.
- ⇒ Architecture of the information system.

Planing for Information Systems

- ⇒ The Complexity of the information resources enviroment suggests that Planing is vital to Success.
- ⇒ The Plan describes the structure and Content of the information System and how it is to be developed.
- ⇒ The organization's strategic Plan should be the basis for the MIS strategic Plan.
- ⇒ The overall responsibility of IS planning is the responsibility of chief information Officer (CIO).