

Final Term

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Q#1:- Explain the Principle of Simple Network Management Protocol (SNMP)?

(Ans):- Simple Network Management Protocol (SNMP) is an application layer protocol for monitoring and managing network devices on a local area network (LAN) or wide area network (WAN). The purpose of SNMP is to provide network devices such as routers, servers and printers with a common language for sharing information with a network management system (NMS).

⇒ **SNMP** Components :-

There are 3 components of SNMP:

1. **SNMP Manager** - It is a centralised system used to monitor network it is also known as network management station (NMS).
2. **SNMP agent** - It is a software management module installed on a managed device. managed devices can be network devices like PC, router, switches, servers etc.

3. Management Information Base :-

MIB Consists of information of resources that are to be managed.

These information is organised hierarchically it consists of objects instances, which are essentially variables.

Q₂ - Name the features of Common Management Information Services (CMIS).

Explain the services of associated with CMIS?

(Ans) - Feature of CMIS:

Services based on simple request / response approach.

→ Association Services.

→ Operation Services.

→ Notification Services.

- Scoping.
- Synchronization.
- Linked Replies.
- Functional Units.

- Association Services :-

- Provided by ACSE

- Used to negotiate functional units and Protocol and versions.

- ⇒ A - Associate :

- Establishes a management association

- ⇒ A - Release :

- Terminates a management association
(in an orderly manner).

- ⇒ A - Abort :

- Terminates a management association
(in an abrupt manner).

- Operation Services :-

- M-GET :-

- Used to retrieve the values of one or more attributes of one or more Mos.

- Scoping / Filtering, Linked Replies and Synchronization.

- Confirmed Service only.

- M-SET :-

- Used to replace the value of one or more attributes of one or more Mos.

- Scoping / Filtering linked replies and Synchronization.

- May be Confirmed or Unconfirmed.

→ M - Action :

- Conveys object class/instance, Action Type and optional action-specific information.
- Meaning dependent on MO action specification
- Scoping / Filtering, linked Replies and Synchronization
- May be Confirmed or Unconfirmed.

→ M - CREATE ✓

- Permits creation of new instances of object classes.
- Permits specification of default values (of attributes explicitly and / or by reference).
- Permits explicit or automatic instance naming
- Confirmed Service only.

→ M- Delete :-

- Permit deletion of object class instances.
- Scoping / Filtering, linked Replies and Synchronization.
- Confirmed Service only.

→ M. Cancel - Get :-

- Permits a linked GET response to be terminated.
- Confirmed Service only.

⇒ Notification Service :-

→ M- Event - Report :-

- Convey object class report / instance, Event type and optional, event - specific information.
- Meaning dependent on MO notification Specification.
- May be Confirmed or Unconfirmed.

Scoping and Filtering

Pg# 09

→ Scoping:

Selects objects to be operated upon within the managed object Containment tree.

→ Scope defined relative to a base managed object:

- Base object only
- Nth level Subordinate objects only.
- Base object Plus all of its subordinates (entire subtree)

→ Filtering:-

Permits objects within scope to be selected according to test criteria.

- Operation applied to all selected objects.
- Multiple (linked) Replies used if more than one object Selected.

→ Synchronization :-

- Applies only to operations on multiple objects (via filtering)
- Atomic Synchronization All or Nothing constraint.
- Best Effort Synchronization
 - no guarantees.
- Permits multiple Responses to a single operation request.
- Application only if Scoping / Filtering used.
- Cancel GET Permits abrupt terminate of linked Get responses.

— END OF Q2 —

Q₃ :- Briefly explain the main elements of a Core network (CN)?

(Ans) :-

1. HLR (Home location Register)
2. MSC / VLR (Mobile Services Switching Center / Visitor location Register)
3. GMSC (Gateway MSC)
4. SGSN (Serving GPRS (General Packet Radio Service) Support Node)
5. GGSN (Gateway GPRS Support Node)

1. HLR :- A home location Register (HLR) is the definitive database of mobile subscriber information for a wireless carriers network.

2. VLR :- Is a Server in a Cellular network that Supports roaming functions for users outside the coverage area of their own HLR.

3. GMSC :- The Gateway Mobile Switching Center (GMSC) is a special kind of MSC that is used to route calls outside the mobile network.

4. SGSN :- The Serving GPRS Support Node (SGSN) is a main component of the GPRS network which handles all packet switched data within the network.

5. GGSN :- A Gateway GPRS Support Node is part of the core network that connects GSM-based 3G networks to the Internet.

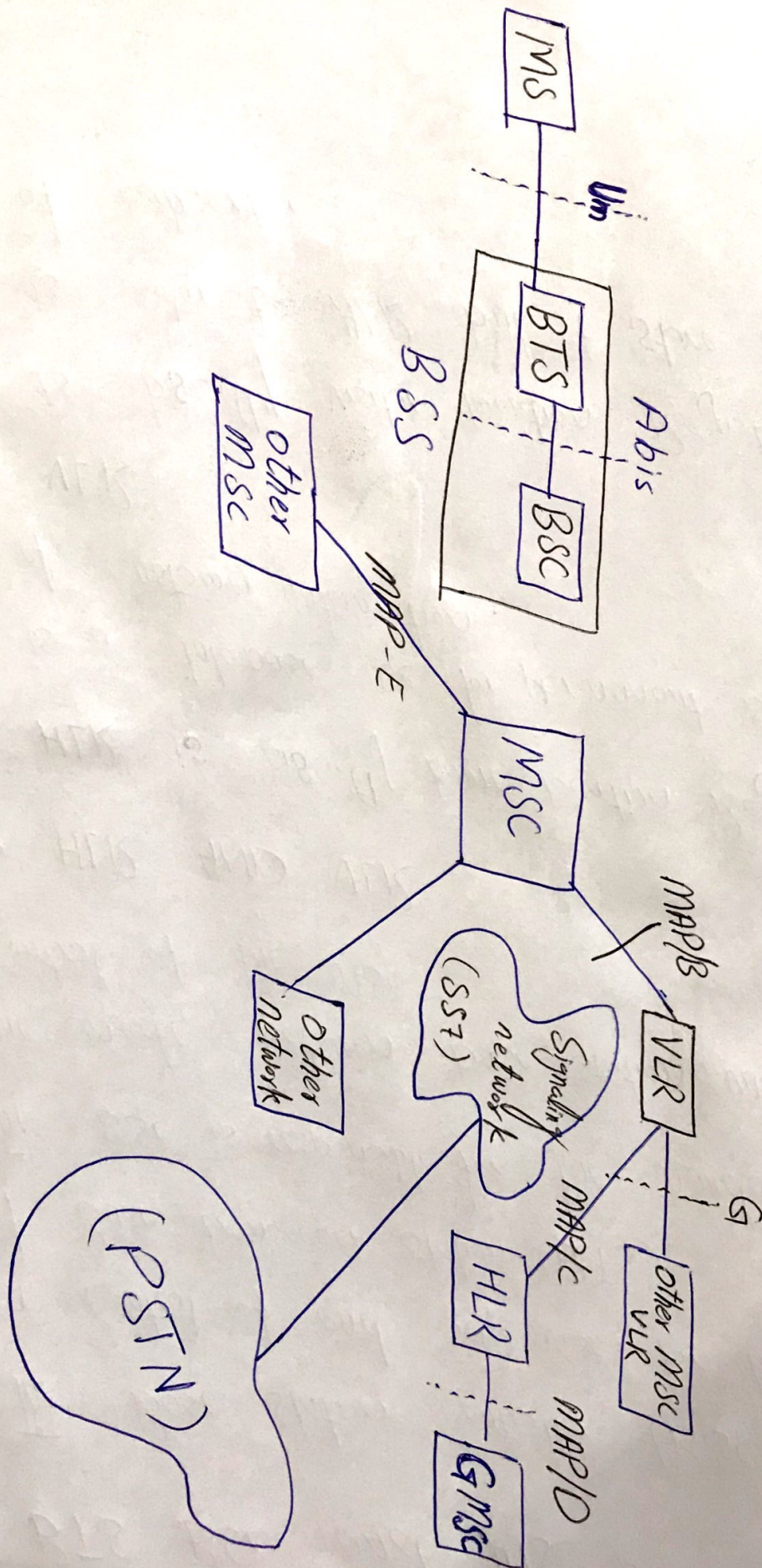
(Q4):- What is Public Mobile Network (PLMN)?

Draw and describe the network Elements in PLMN.

(Ans):- A Public land mobile network (PLMN) is any wireless communication system intended for use by terrestrial subscribers in vehicles or on foot.

Such system can be stand alone but often it is connected with a fixed system such as Public switched Telephone Network (PSTN)

The most familiar example of PLMN and user is a person with a cell phone.



⇒ BTS BSC and MSC :-

The Base station Controller (BSC) is in control of and Supervises for the allocation of Base transceiver station (BTS).

The BSC is responsible for the handover that are made between base station under the control of the MSC

⇒ HLR AND VLR

HLR is basically home location Register is a database use for permanant storage of customer information.

⇒ VLR

Is basically visitor location Register is similar to HLR but it store data of Subscriber.

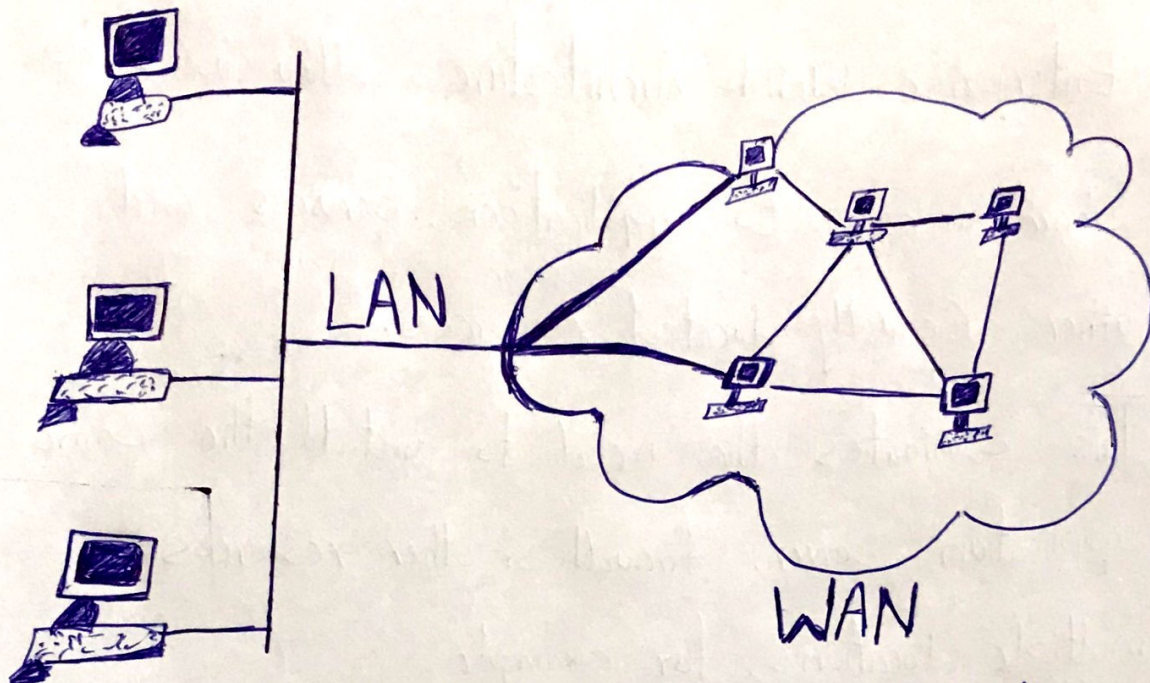
Q.5 :- Explain Enterprise WAN Architecture With the help of diagram?

(Ans) :- Enterprise WANs Architecture allow users to share access to applications, services and other centrally located resources.

This eliminates the need to install the same application server, firewall or other resources in multiple locations, for example.

WANs are not restricted to the same geographical location as a LAN would be.

A LAN can be set up in any number of geographical areas and be connected to a WAN is not constrained to one specific location.



A Wide Area Network WAN is a telecommunication network that extends over a large geographical area for the primary purpose of computer networking.

Wide Area networks are often established with leased telecommunication circuits.