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Exam ::

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Cellular mobile
Communication

Eng: Latif Jan.

Q: Briefly Explain the 1st Generation of cellular telephony by highlighting its importance relevant to different countries?

Answer: 1G refers to the First generation of wireless cellular technology. These are the analog telecommunication standards that were introduced in the 1980s and continued until being replaced by 2G digital telecommunication.

- The telephone is one invention that change the world and open a wide of world communication. many businesses benefited from the addition communication option.

(2)

Q1:b:.. what are the three main types of mobile equipment? Explain them briefly?

Answer:: There are three main types of M.E these are listed below

① Vehicle Mounted::

These device are mounted in a vehicle and the antenna is physically mounted on the outside of the vehicle

② portable mobile unit::

This equipment can be handheld when in operation, but the antenna is not connected to the handset of the unit

③ Hand portable unit::

This equipment comprises of a small telephone handset not much bigger than a calculator. The antenna connected to the

(3)

Question 2: What is a sim? What are the several pieces of information which a sim contains? Explain in simple words?

Ans: A sim or subscriber identity module widely known as a sim card, is an integrated circuit that is intended to securely store the international mobile subscriber identity number and its related key which are used to identify and authenticate subscribers on mobile telephony devices.

- A sim contains its unique serial number (ICCID) international mobile subscriber identity (IMSI) number security authentication and ciphering information.

(3)

(4)

Q2b: Explain the working of OMS in the GSM architecture?

Ans: operation maintenance system is used to monitor and maintain the performance of each mobile station Base Station controller and mobile switching center. The OMS has three main functions.

- ① To maintain all telecommunications hardware and network operations with a particular market
- ② manage all charging and billing procedures
- ③ manage all mobile equipment in the system.

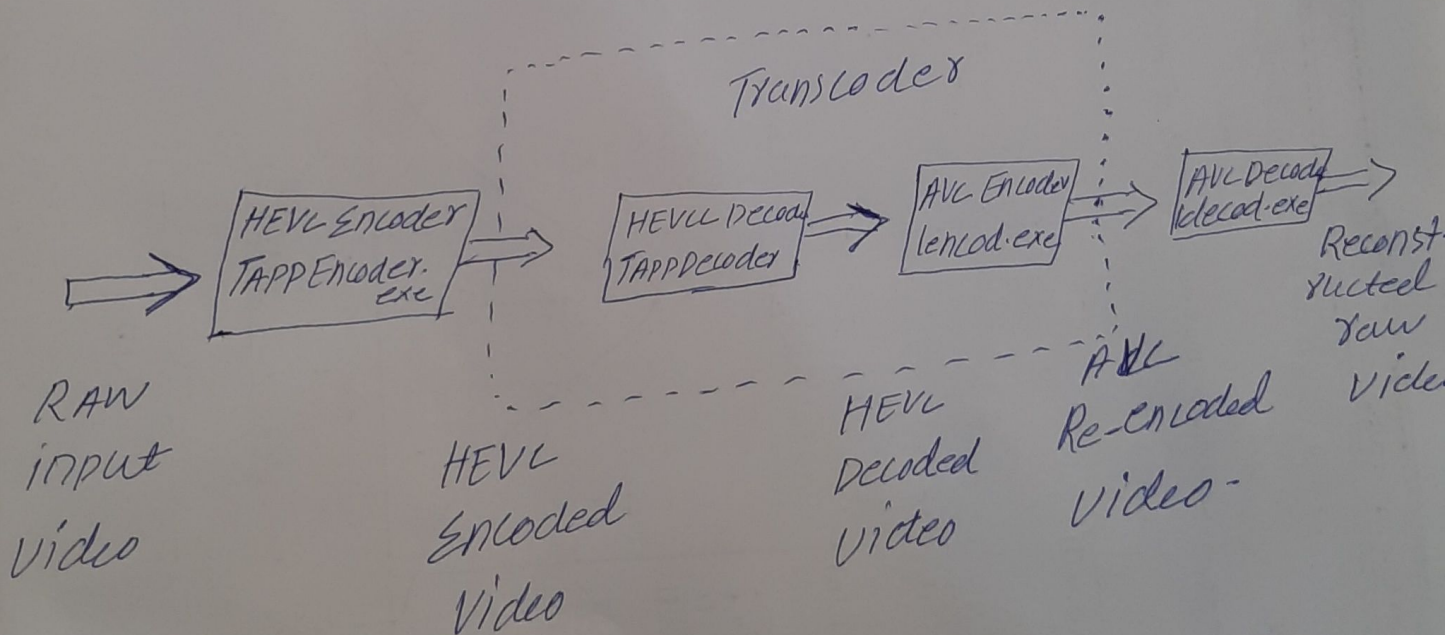
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Q3A: What is Transcoder? make the diagrammatic representation of a transcoder?

Ans: Transcoder:

is the process of converting an audio or video file from one encoding format to another in order to increase the number of compatible target devices a media file can be played.

Diagrammatic representation of transcoder



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Q3B: What do you understand by NSS?

Briefly explain MSC, HLR, VLR and EC?

Answer NSS.

network switching subsystem (NSS) or (GSM core network) is the component of a GSM system that carries out call out and mobility management functions for mobile phones.

• NST ::

HLR :: (Home location register) is a database that contains various information about all of mobile subscribers of a mobile network.

• VLR :: The visitor location register is a database in a mobile communication network associated to a mobile (MSC)

GL ::

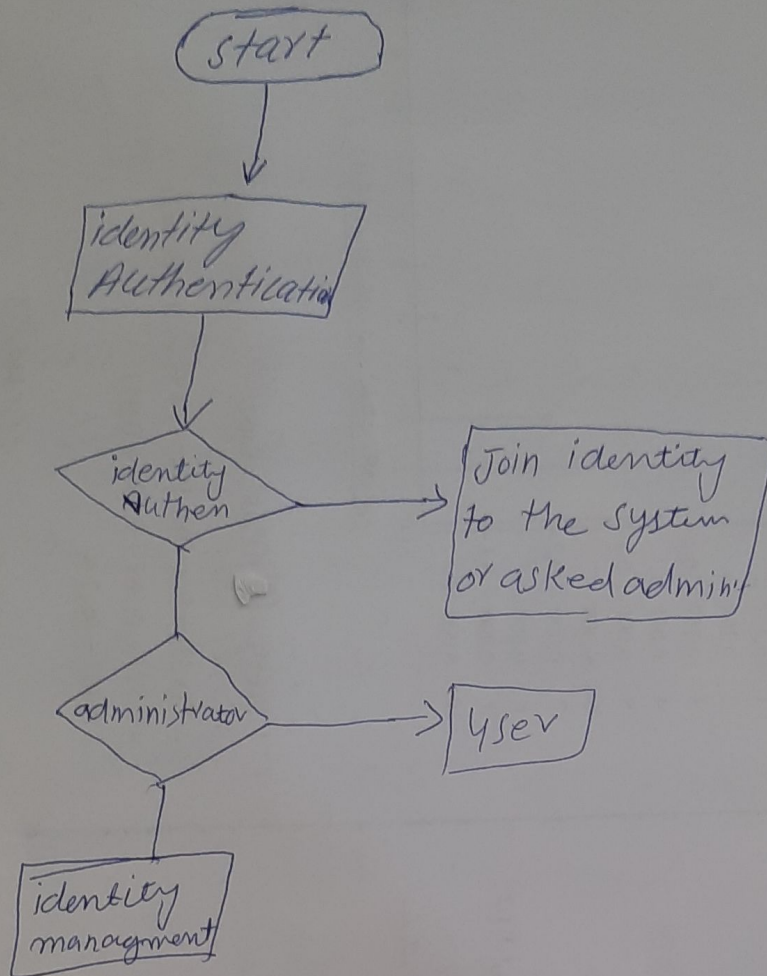
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Q4a.: Explain the Authentication process along with its flow diagram:

Ans.: The authentication process is framed by Client requests and server responses. The authentication request actually includes elements of authorization access right are checked as well. A request contains username u — The claimed identity of the user on Unix system this is typically the user account. However the interpretation context is not defined by the protocol. Server name s — The user is getting requesting access to a server which is really the protocol to run on the SSH-TRANS connection AFTER Authentication finishes.

start

Flowchart For authentication



Q4b: ITU-T's signalling system #7 is used in the GSM network? How it works? Also make an OSI layer (diagrammatic representation) of it.

Answer: Signalling system no 7 (SS7) is set of ~~tech~~ telephony signalling protocols developed in 1975 which is used to set up and tear down telephone calls in most parts of world-wide public switched telephone network (PSTN). The protocols

also performs number translation, local number portability, prepaid billing, short message services (SMS) and other services.

OSI layer diagrammatic representation

Address	layer	PDU
	Application	
	presentation	Data
	Session	
port	Transport	segment
IP	Network	packet
MAC	Data link	Frame
	physical	Bits