Paper .. Cellular Mobile Communication ID 12982

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Question 1[A]….

Explain in brief about the 2nd generation evaluation of cellular telephony. Why the need for 2G arises?

* Ans...

*2nd Generation (2G)*

* Digital modulation and voice processing

Services

Voice

SMS

* GSM(Global system for mobile communication/group special mobile )
* PDC (personal digital cellular )
* DAMPS (digital AMPS)

a.k.a is-15 (interim standard 54 ),a.k.a.TDMA in the US

In America

Is -95(interim standard 95)

A.k.a cdmaone

In Americas, south, Korea, India, China

*2G Evaluation (2.5G)*

* Services: higher data rates and packet switched data
* GSM evolution
* GPRS(General packet radio services )
* EDGE( Enhanced data rates for GSM evolution)
* Is-95 evolution(cdma2000 1ͯͯ.25 MHz band in Americas

*Question 2(B)…*

State all the duplexing and multiple access scheme use in 3g and 4G?

* *Ans…*

CCCC, ;, DODIDJJDJDJFJ OJ ODJ ODJ O 5Mhz 256 2001

1.25Mhz 64 2002

3.25Mhz 3×64 2007

1,4,3,5,10,15, 2010

&20 Mhz

hgvcc

FDD/TDDFDD

TDD

WCDMA cdma20000

3G

FDD/TDD

OFDMA/SC FDMA

4G

*Question 1(C)*

Give as a Raleigh criteria for rough surface as hc=ƛ/(8sin Ɵİ)Station the condition for reflection and scattering?

* *Ans…*

*If h≤hc Flate surface*

*If h≥hc rough surface scattering*

*Question 2(A)*

Explain the GSM technology? Also explain the GSM architecture

With the help of a diagram.

* *Ans…*

HLR

NME

VLR

AUC

ISDN

EIR

MSC

BSC

PSTN

OTHER NETWORKS

* GSM (Global system for mobile communication set of ETSI standard specifying the infrastructure for a digital cellular services..
* GSM networks are structure hierarchically it consist of one admints trative region which is assigned to a MSC. Each admits trative region is made up of a least one location area (LA).LA is also called the visted area
* An LA consists of several group
* Each cell group is assigned to base station controller(BSC)

*Question 2 (B)*

Briefly explain the network switching subsystem?

* *Ans*

*NSS MSC HLR VLR AUC*

CHEAK IDENTITY OF USER

PERMENT STORAGE OF USER INFORMATION

CAL CONTROL

MOBILITY MIGMT

SUBSCRIBER DATA HANDLING

MANAGE COMMUNICATION B/W USERS

INCLUDE DATA BASE TO STORE INFORMATION OF USERS

CHEAK IMEI NUMBER OF MOBILE

GUIUGGOI

STORE OF COPY OF HLR CHEAK HLR

PROVIDE AUTHENT ICATON

SECURITY

*N/W MANAGEMENT SUBSYSTEM ?*

NMS

1. *MONOTORING*
2. *MANAGE*
3. *OPERATION*
4. *MAINTANENCE*

*Question 3 (A)*

What is the free space .Path loss (PL) in db for a pr =10w and Pt =80w? Find the dBm and dBw for the transmitted power.

* *Ans…*

Pr=low Pt =80w find dBw? and dbm?

Pt (db) =10log 80w/10w

10 log 80w

8w

www

10 log

=9.3db

dBm=?

=10 log (9.3w/00w)39.68=40dbm

dBw=?

Log 10(9.3/1w)=10log(9.3)

=9.6=10dBw ans..

*Question 3(B)*

Give here in a two ray path loss model: Pl (db) =40 log d –(10log Gt+10log Gr+20 log hr ).Find the PL(db)if Gt=30,Gr=25,hr=18m and d=5km.

* *Ans…*

PL (dB) =40log 5km – [10 log +30+10log 25+20 log 20m+20log 18m]

PL (dB) =148m – [14.77+13.9+260^+25.1^]

=148m –[79.77m]

=68.23m ans…

BEST OF LUCK…