BBM458-Final

This exam is composed of 20 questions.

Please type your full name and ID as they are registered in BİLSİS.

Duration: 25 minutes.

Good luck!

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Which one of the following OSI layers is responsible for sending frames with the necessary synchronization, error control, and flow control? *

◉ Data link

○ Network

○ Transport

○ Application

○ Session

In a CDMA system, user A is using the code <1, –1, 1, 1, –1, –1>. Which one of the following codes should be assigned to user B so that A and B can use this CDMA system simultaneously? *

○ -1 -1 -1 1 -1 1

○ -1 -1 -1 -1 -1 1

◉ -1 1 -1 -1 -1 1

○ -1 1 -1 -1 -1 -1

○ 1 1 1 -1 -1 -1

We want to send data word 100100 by using CRC error detection scheme. The predetermined divisor pattern is 1101. What is the sent data bit stream T? *

○ 001100100

○ 100100011

○ 100100101

◉ 100100001

○ 100100111

In a cellular network what happens if we increase the distance between centers of the nearest co-channel cells? *

🔘 QoS of the network increases

⭕ QoS of the network decreases

⭕ Capacity of the network increases

⭕ Security of the network decreases

⭕ Security of the network increases

.... is the maximum value or strength of the signal over time. *

🔘 Peak amplitude

⭕ Frequency

⭕ Period

⭕ Angle

⭕ Phase

What happens if we increase the energy per bit (E_b) in a system while keeping the bit rate R same? *

⭕ Error rate decreases

⭕ Error rate increases

More users can be allowed in the system

● Noise increases

○ Co-channel interference increases

What is the unit for the measure of traffic intensity? *

○ Ohm

● Earlang

○ Minute

○ Shannon

What are the factors that affect the free space loss ? *

☑ gain of transmitting antenna

☑ gain of receiving antenna

☐ effective area of transmitting antenna

☐ effective area of receiving antenna

☑ distance between the receiving and transmitting antennas

In a GSM network what prevents an eavesdropper from identifying of subscriber? *

● TMSI

○ IMSI

○ SIM

○ A5

○ A3

Five signals, each requiring 10KHz, are multiplexed on to a single channel using FDM. How much minimum bandwidth is required for the multiplexed channel? Assume that the guard channel is 500Hz wide. *

◉ 52000 Hz

○ 50000 Hz

○ 49500 Hz

○ 48000 Hz

○ 50500 Hz

ID *

21527472

A signal has a fundamental frequency of 100 Hz. What is its period? *

○ 1 sec

○ 1 ms

○ 10 sec

◉ 10 ms

○ 1000 sec

A spectrum of 100 MHz is allocated to a cellular system which uses two 100 KHz duplex channels to provide full duplex voice channels. What is the number of channels available per cell for 4 cell reuse factor? *

◉ 250

○ 100

○ 500

○ 1000

○ 200

Television channels are 6 MHz wide. How many bits/sec can be sent if four–level digital signals are used? Assume a noiseless channel. *

◉ 24 Mbps

○ 12 Mbps

○ 6 Mbps

○ 24 Kbps

○ 12 Kbps

What is the corresponding Hamming Code for the data "1001101"? *

○ 11011100101

○ 10011100100

○ 10011100110

⦿ 10011100101

○ 10010100101

Which is the process of encoding information from a message source in suitable manner for transmission? *

○ Coding

○ Signalling

○ Demodulation

⦿ Modulation

○ Encryption

What are the subsystems of GSM architecture? *

☐ RSS

☑ NSS

☑ OSS

☑ MSC

☐ EIR

Co-channel interference is a function of .... *

◉ Radius of cell

○ Transmitted power

○ Received power

○ Frequency of mobile user

○ Base station height

Name *

Mehmet Taha USTA

Blocked calls cleared formula is also known as .... formula. *

○ Erlang D

○ Erlang C

○ Erlang A

◉ Erlang B

○ Erlang E

Which one of the followings cannot be eliminated? *

◉ Thermal Noise

◯ Intermodulation noise

◯ Crosstalk

◯ Impulse Noise

◯ Co-channel interference

In a GSM network handover decision is made by .... *

◯ BSC

◯ VLR

◯ HLR

◉ BTS

◯ MSC

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