UNIT 9: NETWORKS (I)

READING

1. Read the following text.

ENG 295 - Cellular Networks

This course addresses types of wireless communication technology. We will examine how diffe technologies approach multiple access along the same frequencies. Each section focuses on o of the two major access methods.

Section 1: TDMA
TDMA is a popular access method around the world. Multiple calls are routed along one parti frequency. Call transmission occurs during brief time slots. Each call only transmits during its designated time slots. However, the time slots alternate so quickly that the audio sounds uninterrupted. The course will focus primarily on GSM technology. Its encryption ensures that calls in different time slots remain separate.

Section 2: CDMA
Unlike TDMA, CDMA does not route calls along a designated frequency. Instead, it uses spread spectrum technology to route one call across many frequencies. Each call is identified by a uni sequence code. We'll examine how calls can be overlaid, yet transparent. That means they do interfere with each other.

1 What is the main idea of the course?

A how to build a cellular network

B two types of cellular access methods

C the history of multiple access

D the pros and cons of different technologies

2 What is true about GSM?

A It is a type of CDMA technology.

B Its calls often interfere with each other.

C It no longer requires the use of time slots.

D It keeps calls separate through encryption.

3 Which of the following is NOT true about CDMA?

A It assigns time slots to each call.

B It routes one call across multiple frequencies.

C It allows multiple calls to overlap.

D It prevents calls from interfering with each other.

2. **Think critically. This text describes technologies mainly used in older 2G and 3G cellular networks. Research how modern 4G and 5G systems differ from TDMA and CDMA technologies.**

1) Find two outdated ideas in the text.

- _____
- _____

2) Which technologies are more common today?

3) Why are LTE and 5G more efficient?

4) Is GSM still used in some countries today?

VOCABULARY

3. **Match the words or phrases with the definitions (A-H).**

overlaid | GSM | multiple access | transparent | encryption | interfere with | sequence code | spread spectrum

1) the process of storing information in a coded format: _____
2) the process of sending data in small parts over many frequencies: _____
3) transmitting across the same frequencies at the same time: _____
4) to disrupt the functions or processes of something: _____
5) existing in the same area without disrupting each other: _____
6) a unique code that identifies a call on a frequency: _____
7) the ability to connect multiple calls within a cell at one time: _____
8) a type of TDMA ensuring secure calling: _____

4. **Updating technical vocabulary. The text uses some terms related to older 2G and 3G cellular networks. Research modern mobile network vocabulary and complete the table.**

Older term / idea	Modern equivalent or related concept
1) TDMA	_____
2) CDMA	_____
3) GSM	_____
4) voice calls	_____
5) time slots	_____
6) sequence code	_____
7) radio frequencies	_____
8) cellular network	_____

5. Complete the text with the missing words.

frequencies | encryption | interfere | sequence codes | time slots | multiple access | overlaid | routed

1) How does GSM technology work?

GSM is a type of TDMA network technology that allows _____ along th same frequencies.

A particular call is _____ along a particular frequency, and connects du very brief _____.

However, these time slots alternate so quickly with other time slots that the interrupti to the audio is undetectable.

To prevent calls from _____ with each other, GSM protects each call w _____.

2) How does CDMA technology work?

CDMA technology is also a multiple access technology, but works very differently from GSM.

Instead of routing a call along one frequency, CDMA routes each call across many _____.

The calls are _____ with each other, but unique _____ keep them separate.

These codes ensure that the calls are transparent to each other, or don't interfere with each other.

STRUCTURE OF A TECHCNICAL PRESENTATION

1. Match each part of the presentation with its function.

A Introduction	**1)** "The probes cover from 1 hertz up to 400 kilohertz..."
B Description of components	**2)** "Hello, I'm John from Wave Control and I'd like to present the SMP2..."
C Explanation of functions	**3)** "This is why we call the SMP2 a three-in-one device."
D Technical specifications	**4)** "Field probes are needed to measure electric or magnetic fields."
E Final conclusion	**5)** "It comes with the SMP2 reader which is a PC software..."

2. Watch the video. Complete the useful presentation phrases.

1) I'd like to _____ the SMP2.

2) It comes _____ a charger and a _____ cable.

3) Field probes are _____ to measure electric or magnetic fields.

4) The probe is automatically _____ on your SMP2.

5) So you have the first group _____ covers from 100 kilohertz up to 3, 6, 8 and 18 gigahertz.

6) These probes are _____ for telecommunications applications.