ELIZADE UNIVERSITY, ILARA-MOKIN, ONDO STATE
FACULTY OF ENGINEERING
DEPARTMENT OF COMPUTER ENGINEERING

SECOND SEMESTER EXAMINATION, 2018/2019 ACADEMIC SESSION

COURSE TITLE: MOBILE COMMUNICATIONS AND WIRELESS NETWORKS

COURSE CODE: ECT 515

EXAMINATION DATE: FEBRUARY 2020

COURSE LECTURER: PROF A. O. OLUWATOPE

HOD's SIGNATURE

TIME ALLOWED: 3 HOURS

INSTRUCTIONS:

1. ANSWER FOUR QUESTIONS ONLY.
2. SEVERE PENALTIES APPLY FOR MISCONDUCT, CHEATING, POSSESSION OF UNAUTHORIZED MATERIALS DURING EXAM.
3. YOU ARE **NOT** ALLOWED TO BORROW ANY WRITING MATERIALS DURING THE EXAMINATION.

QUESTION #1

a. What is spread spectrum? [3 marks]
b. Define FHSS and explain how it achieves bandwidth spreading [6 marks]
c. Define DSSS and explain how it achieves bandwidth spreading. [6 marks]

QUESTION #2

a. Describe the space/time model of a collision in CSMA [3 marks]
b. Describe the persistence method for CSMA. [6 marks]
c. Describe the CSMA/CA algorithm [6 marks]

QUESTION #3

a. Describe types of Data Link Layer errors [2 marks]
b. What is a linear block code? [3 marks]
c. Describe the principle of encoding and decoding for a simple parity-check code
   [10 marks]

QUESTION #4

a. Describe the model of the cellular system [5 marks]
b. Write short notes on the following operations of the cellular telephony [10 marks]
   i. Frequency re-use
   ii. Transmitting
   iii. Receiving
   iv. Handoff

QUESTION #5

a. Describe the Fourth Generation cellular telephony in terms of access scheme, modulation, radio system, antenna and applications [10 marks]

b. Describe the general idea of the symmetric-key cipher [5 marks]

QUESTION #6

a. Describe the WiMAX services and highlight the major differences between the fixed and mobile WiMAX [6 marks]

b. Discuss the three network security goals [3 marks]

c. Describe two types of attack threating each of the security goals [6 marks]