ELIZADE UNIVERSITY, ILARA-MOKIN, ONDO STATE
FACULTY OF ENGINEERING
DEPARTMENT OF INFORMATION AND COMMUNICATION TECHNOLOGY

SECOND SEMESTER EXAMINATION, 2018/2019 ACADEMIC SESSION
COURSE TITLE: COMPUTER SECURITY TECHNIQUES

COURSE CODE: ECT 530

EXAMINATION DATE: 11TH JULY, 2019

COURSE LECTURER: ENGR. O. O AFOLABI

HOD's SIGNATURE

TIME ALLOWED: 2 HOURS

INSTRUCTIONS:

1. ANSWER QUESTION **ONE** AND ANY OTHER **THREE** QUESTIONS
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. Discuss the role of specification with relevant example in the life cycle of security. [6marks]

b. Define the following terms in the context of cryptographic system: [3marks each]

   i. Adversary

   ii. Cryptanalysis

   iii. Cryptosystem

c. Compute the ciphertext of "SECURITY TECHNIQUES" with the implementation of the Rail Fence Cipher. [5marks]

d. Identify the five frameworks of ethics in computer security. [10marks]

Question 2

a. What is a digital signature? [3marks]

b. Suppose Alice and Bob share a secret key k. Alice sends Bob m || {m}k (that is, the message and its encipherment under k). Is this a digital signature? Justify your response with detailed explanation. [4marks]

c. Given a message m=35, p = 7, q= 13, e = 5, d =29. Compute the digital signature for the message. [3marks]

Question 3

a. Discuss the approach adopted in Challenge Response to address dictionary attack. [3marks].

b. User *U* desire to authenticate himself to system *S*. *S* sends a random message m (the challenge) of value 12 to *U*, *U* and *S* have an agreed-on secret function f of value 6. Compute the value of the transformation *r* (response). [3marks]

c. What is the key difference between the speaker verification technique and the verbal information verification technique? [4marks]

Question 4

a. Discuss the relevance of Global Positioning System (GPS) and Location Signature Sensor (LSS) in the context of Location-Based Authentication. [5marks]

b. Reverse Engineering may defy Trade Secret protection. Illustrate this concept with respect to its applicability to computer programs. [5marks]

Question 5

a. Discuss into some details the justification for patenting Computer Objects. 5marks

b. State the five Performance Evaluation Metrics of a Good Video Encryption Algorithm. [5marks]

Question 6

a. What are the key distinctions between Copyright, Patent and Trade Secret? 6marks

c. Generate the corresponding Autokey Cipher from the plaintext *"meet me at the corner"* using the keyword "*king*". Given the following Tabula Recta. [4marks]

	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z
A	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z
B	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z	A
C	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z	A	B
D	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z	A	B	C
E	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z	A	B	C	D
F	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z	A	B	C	D	E
G	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z	A	B	C	D	E	F
H	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z	A	B	C	D	E	F	G
I	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z	A	B	C	D	E	F	G	H
J	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z	A	B	C	D	E	F	G	H	I
K	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z	A	B	C	D	E	F	G	H	I	J
L	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z	A	B	C	D	E	F	G	H	I	J	K
M	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z	A	B	C	D	E	F	G	H	I	J	K	L
N	N	O	P	Q	R	S	T	U	V	W	X	Y	Z	A	B	C	D	E	F	G	H	I	J	K	L	M
O	O	P	Q	R	S	T	U	V	W	X	Y	Z	A	B	C	D	E	F	G	H	I	J	K	L	M	N
P	P	Q	R	S	T	U	V	W	X	Y	Z	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O
Q	Q	R	S	T	U	V	W	X	Y	Z	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P
R	R	S	T	U	V	W	X	Y	Z	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q
S	S	T	U	V	W	X	Y	Z	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R
T	T	U	V	W	X	Y	Z	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S
U	U	V	W	X	Y	Z	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T
V	V	W	X	Y	Z	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U
W	W	X	Y	Z	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V
X	X	Y	Z	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W
Y	Y	Z	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X
Z	Z	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y