UNIVERSITY COLLEGE TATI

UNIVERSITY COLLEGE TATI (UC TATI)

FINAL EXAMINATION QUESTION BOOKLET

COURSE CODE	: DNT 3033
COURSE	: NETWORK SECURITY
SEMESTER/SESSION	: 2 - 2022/2023
DURATION	: 3 HOURS

Instructions:

1. This booklet contains 5 questions. Answer ALL questions.
2. All answers should be written in answer booklet.
3. Write legibly and draw sketches wherever required.
4. If in doubt, raise your hands and ask the invigilator.

DO NOT OPEN THIS BOOKLET UNTIL YOU ARE TOLD TO DO SO

THIS BOOKLET CONTAINS 4 PRINTED PAGES INCLUDING COVER PAGE

QUESTION 1

a) There are basically **THREE (3)** objectives of network security. Explain those **THREE (3)** objectives.

(9 marks)

b) For each objective, suggest **ONE (1)** attack and **ONE (1)** network security service/ mechanism to prevent the attack.

(12 marks)

c) Name another objective of network security other than **THREE (3)** you answered in (a) and (b).

(1 mark)

QUESTION 2

a) State **ONE (1)** difference between virus and worms.

(2 marks)

b) Complete the table below:

(11 marks)

Attackers	**Skill Level**	**Motivation**
Hacker	**(1)**	Improve Security
(2)	**High**	**(3)**
(4)	Low	**(5)**
(6)	**(7)**	Earn money
Employee	**(8)**	**(9)**
(10)	**(11)**	Support ideology

c) By referring to your answer in a), which attacker can do the devastating impact to an organization? Why? Propose **TWO (2)** reasons.

(6 marks)

d) Briefly suggest **TWO (2)** objectives of a cyberattack by Cyberterrorists.

(4 marks)

QUESTION 3

a) Evaluate and encrypt/decrypt the following data by using the given algorithm.

i) Algorithm – Hashing

(4 marks)

Plaintext	Multiplier	Formula	Ciphertext
156983456	123	Value * Multiplier	

ii) Algorithm - Stream Cipher – Substitution

(10 marks)

A	B	C	D	E	F	G	H	I	J	K	L	M	PLAINTEXT
T	U	V	W	X	Y	Z	1	2	3	4	5	6	SUBSTITUTION

N	O	P	Q	R	S	T	U	V	W	X	Y	Z	PLAINTEXT
7	8	9	!	@	#	$	%	^	&	*	(	)	SUBSTITUTION

Plaintext	Ciphertext
NETWORKSECURITY	
COMPUTERFORENSICS	

iii) Algorithm -Transposition Cipher

(5 marks)

Key – LIVERPOOL

Ciphertext – LIBI WTCI IEEE RJS CUAI OBUT SSCE LSEK IHTL

Plaintext - .....

b) Briefly propose **TWO (2)** ways to prevent social engineering attack in an organization.

(4 marks)

QUESTION 4

a) Name **TWO (2)** examples of hashing, symmetric and asymmetric algorithms respectively.

(6 marks)

b) Briefly explain how to secure a web communications?

(2 marks)

c) Propose **TWO (2)** usage of hashing.

(4 marks)

QUESTION 5

a) Explain the processes in the e-mail system by highlighting the **TWO (2)** protocols involved.

(8 marks)

b) Suggest and explain **THREE (3)** threats or attacks that could be happened when someone using E-Mail.

(12 marks)

----------**End of question**----------

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Criteria	Marks
All questions answered will be marked according to the answer schema	/100