UNIVERSITY COLLEGE TATI

UNIVERSITY COLLEGE TATI (UC TATI)

FINAL EXAMINATION QUESTION BOOKLET	
COURSE CODE	: DNT 3033
COURSE	: NETWORK SECURITY
SEMESTER/SESSION	: 1 – 2023/2024
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 3 PRINTED PAGES INCLUDING COVER PAGE

QUESTION 1

a) State **SIX (6)** examples of malicious code. (6 marks)

b) Differentiate between encryption and decryption process in cryptography by illustrating a diagram of connection between them. (6 marks)

c) Explain **THREE (3)** goals of network security. (6 marks)

QUESTION 2

a) Explain **THREE (3)** categories of attacker's profile. (6 marks)

b) Explain **TWO (2)** types of network attacks. (4 marks)

c) Describe cryptography and define **TWO (2)** methods of cryptography. (4 marks)

d) Discuss **TWO (2)** things about social engineering attack. (4 marks)

QUESTION 3

a) Differentiate between confidentiality, integrity and availability. (6 marks)

b) Explain **THREE (3)** categories of cryptographic algorithms. (6 marks)

c) Encode '**THIS IS VERY CHALLENGING**' using a Caesar cipher with a shift key of **5**. (4 marks)

d) Decrypt this ciphertext '**EQORWVGTUEKGPEG**' using the Caesar cipher with a shift key of **2**. (4 marks)

e) xBank and its customers use a Diffie-Hellman protocol as a method to generate a shared private key with which they can then exchange information across an insecure channel with the following step.

Bank and customers agree on using prime number, n = 47 and primitive root number, g = 43.

Bank sends customers its private number Bankpriv = 3

Customer sends bank its private number Custpriv = 5

Compute the public keys (Bankpup and Custpup) and the secret keys (Banksecrt and Custsecrt) of Diffei-Hellman arrangement protocol utilized by bank and its customers. (8 marks)

QUESTION 4

a) Compare hardware Firewall and software Firewall. (4 marks)

b) Illustrate the network diagram including Firewalls and Intrusion Detection System. (6 marks)

c) Discuss **FOUR (4)** limitations and strength of Firewall. (8 marks)

QUESTION 5

a) Explain **TWO (2)** attacks that were used by attackers to retrieve crucial information from a Web server's database. (6 marks)

b) Differentiate between Secure Socket Layer (SSL) and Transport Layer Security (TLS). (4 marks)

c) Discuss **FOUR (4)** good habits while using a web browser. (8 marks)

----------END OF QUESTIONS----------