SIR ARTHUR LEWIS COMMUNITY COLLEGE

ENGINEERING AND THE CIRCULAR ECONOMY

ACADEMIC YEAR (2024/2025) – SEMESTER ONE

END OF SEMESTER ALTERNATE EXAMINATION

TUTOR(S)	**:**	**Miss Kem Emmanuel**
PROGRAMME TITLE	**:**	**Computer and Information Technology**
COURSE TITLE	**:**	**Fundamentals of Information Security**
COURSE CODE	**:**	**CIT216**
LEVEL	**:**	**Associate Degree/ Year Two**
PAPER	**:**	**Two**
DATE	**:**	**Thursday, 16th January 2025**
COMMENCEMENT TIME	**:**	**1:00p.m.**
DURATION	**:**	**Two (2) Hours**
INVIGILATOR(S)	**:**	
ROOM(S)	**:**	**CEHI-1R-02**

GENERAL INFORMATION AND INSTRUCTIONS

- **This Paper contains Three (3) Sections.**
- **Section A** contains twenty (20) multiple choice question. One mark is awarded for each correct answer.
- **Section B** contains eight (8) short answer questions.
- **Section C** contains two (2) long answer questions
- Students must sign **IN** and **OUT** on the examination class list.
- Students must not write their names on their answer sheets, only their ID number
- Please number your responses accurately.
- **Note: Bags, Books as well as writing paper not given by the invigilator should be deposited at the front of the examination room or as otherwise indicated.**
- **All cell phones must be turned off during the exam**

DO NOT TURN THIS COVER SHEET UNTIL
YOU ARE TOLD TO DO SO!!!

Section A - Multiple Choice Questions

(Choose the most appropriate answer. One mark is awarded for each correct answer.)

1. From the options below, which of them is not a threat to information security?
   (A) Disaster
   (B) Eavesdropping
   (C) Information leakage
   (D) Unchanged default password

2. The full form of Malware is _____
   (A) Malfunctioned Software
   (B) Multipurpose Software
   (C) Malicious Software
   (D) Malfunctioning of Security

3. Which method of hacking will record all your keystrokes?
   (A) Keyhijacking
   (B) Keyjacking
   (C) Keylogging
   (D) Keyboard monitoring

4. According to the CIA Triad, which of the below-mentioned element is not considered in the triad?
   (A) Confidentiality
   (B) Integrity
   (C) Authenticity
   (D) Availability

5. _____ means the protection of data from modification by unknown users.
   (A) Confidentiality
   (B) Integrity
   (C) Authentication
   (D) Availability

6. Data integrity gets compromised when _____ and _____ are taken control off.
   (A) Access control, file deletion
   (B) Network, file permission
   (C) Access control, file permission
   (D) Network, system

7. _____ is the practice and precautions taken to protect valuable information from unauthorized access, recording, disclosure or destruction.
   (A) Network Security
   (B) Database Security
   (C) Information Security
   (D) Access Control

8. When plain text is converted to unreadable format, it is termed as _____
   (A) hashed text
   (B) raw text
   (C) cipher-text
   (D) ciphen-text

9. Cryptography can be divided into _____ types.
   (A) 5
   (B) 4
   (C) 3
   (D) 2

10. _____ is the mathematical procedure or algorithm which produces a cipher-text for any specified plaintext.
   (A) Encryption Algorithm
   (B) Decryption Algorithm
   (C) Hashing Algorithm
   (D) Tuning Algorithm

11. The full form of OSI is OSI model is _____
   (A) Open Systems Interconnection
   (B) Open Software Interconnection
   (C) Open Systems Internet
   (D) Open Software Internet

12. Which of the following is an example of network layer vulnerability?
   (A) MAC Address Spoofing
   (B) Physical Theft of Data
   (C) Route spoofing
   (D) Weak or non-existent authentication

13. A computer _____ is a malicious code which self-replicates by copying itself to other programs.
    (A) Program
    (B) Virus
    (C) Trojan
    (D) Worm

14. What is the goal of social engineering?
    (A) Sabotage a person's social media
    (B) To gain vital personal information
    (C) To catfish someone
    (D) To build trust

15. In segmentation, each address is specified by _____.
    (A) a segment number and offset
    (B) an offset and value
    (C) a value and segment number
    (D) a key and value

16. _____ separation restricts users to their own devices.
    (A) Physical
    (B) Temporal
    (C) Logical
    (D) Cryptographic

17. _____ mimics the techniques an attacker would use.
    (A) Vulnerability assessments
    (B) Auditing
    (C) Penetration Testing
    (D) Monitoring

18. An email claiming that you have won the lottery, as long as you fill out the corresponding information, is an example of what type social engineering attack
    (A) Baiting
    (B) Phishing
    (C) Piggybacking
    (D) Email from a friend

19. What level of privileges must all users have?
    (A) Administrator
    (B) Guest
    (C) Most possible privileges
    (D) Least possible

20. Auditing through a computer means
    (A) The inputs and the corresponding outputs are compared and checked for correctness
    (B) The programs and procedures are checked for correctness
    (C) Special synthetic data is input and outputs checked for correctness
    (D) Programs are written to check the functioning of the computer hardware

Section B - Short Answers (40 Marks)

(Answer all questions within this section**.)**

1. List two (2) security benefits of implementing accountability within your system. (2 marks)
2. List two strategies to tackle Human Error. (2 marks)
3. Name three (3) causes of information loss. (3 marks)
4. List four items SALCC might want to audit. (3 marks)
5. List and describe the two measures utilized when determining the performance a biometric system. (4 marks)
6. Explain the CIA Triad Security elements. (6 marks)
7. Explain the process of operation security. (10 marks)
8. Describe five (5) types of authentication factors and describing each. (10 marks)

Section C - Long Answers (20 Marks)

(Answer all questions within this section.)

Question One

(A) Explain the concept of defense in depth. **(1 mark)**

(B) Using the concept of defense in depth, what layers might we use to secure ourselves against someone removing confidential data from an office on a USB flash drive? **(6 Marks)**

(C) How does your strategy ensure the security of the confidential files on the flash drive while allowing these files to be accessible to authorized users? **(3 marks)**

Question Two

(A) Briefly explain the Playfair Cipher, stating its rules for decryption. **(5 Marks)**

(B) Fill in the squares for the Playfair cipher with keyword: Fancy. **(1 Marks)**

(C) Utilizing the grid made in b decrypt the following: “HTWPGW HKEL”. **(2 Mark)**

(D) Utilizing the grid made in b encrypt the phrase “The Final”. **(2 Marks)**

END OF EXAMNINATION!!