BOWEN UNIVERSITY IWO, OSUN STATE
COLLEGE OF COMPUTING AND COMMUNICATION STUDIES
CYBER SECURITY PROGRAMME
B. SC. DEGREE, FIRST SEMESTER, SESSION: 2023/2024
COURSE TITLE: THREATS, EXPLOITS, AND COUNTERMEASURES
COURSE CODE: CYB 417   TIME ALLOWED: 2 hours COURSE CREDIT: 2

INSTRUCTIONS: Attempt Question <u>No 1</u> and ANY other <u>TWO (2)</u> Questions

Question 1

Security COUNTERMEASURES are cost-effective counteractions, designed to address specific VULNERABILITIES of identified THREATS, to eliminate/prevent the possibility of successful EXPLOITS (attacks), such that potential RISKS are reliably alleviated.

    a. Why should vulnerability be the sole focus of any countermeasure?   (5 Marks)
    b. How would you differentiate a threat from a risk?   (5 Marks)
    c. Which exploits should a technical countermeasure prevent?   (5 Marks)
    d. What basic security principles should a countermeasure ensure?   (5 Marks)
    e. Why would a business not be interested in security countermeasure?   (5 Marks)
    f. Highlight the functional categories of countermeasures.   (5 Marks)

2. Countermeasure development is definitely a software development; so, it is proper for its design to follow after the pattern of the Software Development Life Cycle (SDLC).
    a. Why should a security solution provider adopt SDLC for its projects?   *(5 Marks)*
    b. How does SDLC address security solution developments?   (15 Marks)

3. Vulnerability assessment report is basic to the motivations and the justifications for the development of a countermeasure, based on existing threats.
    a. What procedures would make a viable vulnerability assessment?   (15 Marks)
    b. Broadly classify threats to encompass most existing vulnerabilities.   (5 Marks)

4. Risk assessment is the interface between vulnerability assessment and risk analysis, outcome of which justifies countermeasure for threat mitigation (to prevent exploit).
    a. Present the mathematical procedures for an efficient risk analysis.   (15 Marks)
    b. What specific steps would you suggest for a reliable risk assessment?   (5 Marks)