



NATIONAL OPEN UNIVERSITY OF NIGERIA
PLOT 91, CADASTRAL ZONE, NNAMDI AZIKIWE EXPRESSWAY, JABI-ABUJA
FACULTY OF COMPUTING
DEPARTMENT OF COMPUTER SCIENCE
2025_1 EXAMINATION

COURSE CODE: CIT 855

COURSE TITLE: Advanced Cybersecurity

COURSE CREDIT: 2 Units

TIME ALLOWED: 2 Hours

INSTRUCTIONS: Answer Question **ONE** (1) and any other **TWO** (2) Questions

Question 1 (Compulsory, 30 marks)

- 1(a). Define the primary goals of cybersecurity. **(6 marks)**
- 1(b). Explain the tools used to ensure data confidentiality. **(6 marks)**
- 1(c). Discuss the principle of least privilege and how it applies in cybersecurity. **(6 marks)**
- 1(d). Describe the importance of regular backups in maintaining data integrity. **(6 marks)**
- 1(e). Explain the concept of physical security in the context of cybersecurity. **(6 marks)**

Question 2 (20 marks)

- 2(a). What is a firewall, and what are its primary functions? **(5 marks)**
- 2(b). Differentiate between packet-filtering and stateful inspection firewalls. **(5 marks)**
- 2(c). Explain the concept of a Virtual Private Network (VPN) and its significance in cybersecurity. **(5 marks)**
- 2(d). Discuss the role of intrusion detection systems (IDS) in network security. **(5 marks)**

Question 3 (20 marks)

- 3(a). Identify and explain three common cybersecurity threats to e-commerce. **(5 marks)**
- 3(b). What measures can e-commerce sites implement to protect against phishing attacks? **(5 marks)**
- 3(c). Describe how encryption can secure online transactions. **(5 marks)**
- 3(d). Discuss the impact of ransomware on e-commerce businesses and how they can mitigate this threat. **(5 marks)**

Question 4 (20 marks)

- 4(a). Explain the concept of risk analysis in cybersecurity and its importance. **(5 marks)**
- 4(b). Differentiate between qualitative and quantitative risk analysis. **(5 marks)**
- 4(c). Describe the steps involved in the risk analysis process. **(5 marks)**
- 4(d). Discuss the role and benefit of Artificial Intelligence (AI) and Machine Learning (ML) in enhancing cybersecurity defences. **(5 marks)**

Question 5 (20 marks)

- 5(a). What is the significance of data archiving in cybersecurity? **(5 marks)**
- 5(b). Differentiate between data backup and data archiving. **(5 marks)**
- 5(c). What are the potential threats to Data Security in an organization? **(5 marks)**
- 5(d). Explain the differences between Network-Based Intrusion Detection Systems (NIDS) and Host-Based Intrusion Detection Systems (HIDS). **(5 marks)**