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Computer science
Higher level
Paper 3

4 May 2026

Zone A morning | **Zone B** morning | **Zone C** morning

1 hour

Instructions to students

- Do not turn over this examination paper until instructed to do so.
- A clean copy of the **computer science case study** is required for this examination paper.
- Read the case study carefully.
- Answer all questions.
- The maximum mark for this examination paper is **[30 marks]**.

Answer **all** questions.

1. (a) Outline **one** advantage of the black box approach to penetration testing. [2]
(b) Outline what is meant by search engine dorking. [2]
 2. (a) Outline **two** ways in which penetration testing is impacted by the use of Internet of Things (IoT)-enabled medical devices. [4]
(b) Outline **two** harmful consequences of a breach in cybersecurity in a healthcare facility, such as a hospital. [4]
 3. Exploit development is part of the exploitation phase of the penetration testing execution standard (PTES) process.

Explain the process of exploit development. [6]
 4. It is important for *MTPH* that its operations are not disrupted during the process of penetration testing and that the security of its healthcare data is not compromised.

Evaluate the use of network scanning, network mapping, and open-source intelligence (OSINT) techniques to gather information about *MTPH's* network without disrupting the hospital's operations or risking the security of sensitive healthcare data. [12]
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