



FACULTY OF SCIENCE

Academy of Computer Science and Software Engineering

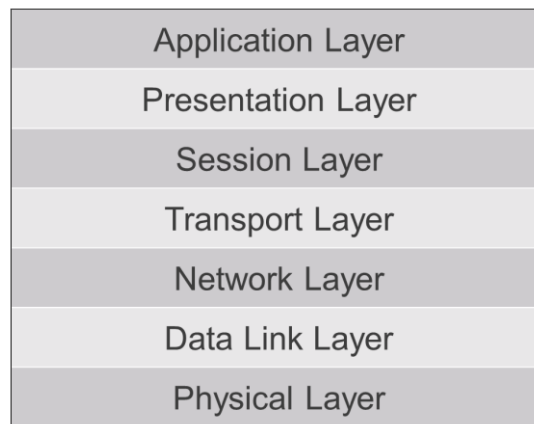
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| Module | IT08X57 Information Security in the WWW |
| Campus | APK |
| Exam | November 2019 |

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|---------------------------|--------------------------|--------------|-------|
| Date | 15 November 2019 | Time | 08:30 |
| Assessor | Mr F F Blauw | | |
| External Moderator | Prof B L Tait (UNISA) | | |
| Duration | 120 minutes | Marks | 100 |

The question paper consists of 3 pages

Instructions:

- Answer all questions.
 - Please write neatly and legibly.
 - Do not write in pencil.
 - Ensure that all diagrams are neatly drawn.
 - Unless otherwise stated, diagrams do not constitute complete answers.
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QUESTION 1

Consider the Open Systems Interconnection (OSI) model above. Choose any **four (4)** layers. Name each chosen layer and then:

- Discuss one security issue/vulnerability that can be found on the layer (2)
- Discuss the detection of the issue/vulnerability (3)
- Discuss a potential mitigation of the chosen issue/vulnerability (3)

4x(8) = [30 capped]

QUESTION 2

Briefly describe the lifecycle of a rootkit.

[5]

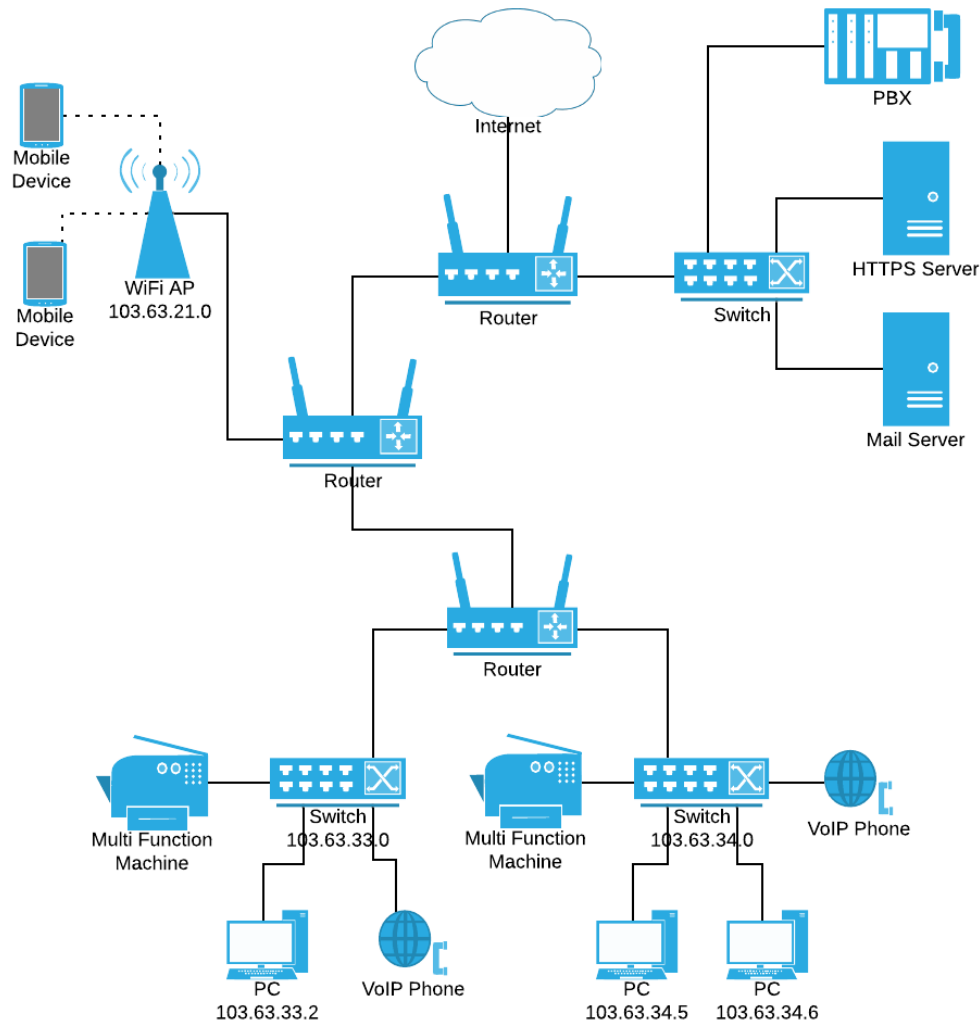
QUESTION 3

The Open Web Application Security Project (OWASP) is a not-for-profit organisation whose aim is to find and fight web application vulnerabilities. They regularly publish a TOP TEN list of vulnerability.

Name **three (3)** potential vulnerabilities from the OWASP Top 10. **For each** vulnerability named:

- a) Show (using a diagram or code) an **example** of such a vulnerability. (3)
- b) Discuss the **exploitability** and **impact** of your vulnerability. (2)
- c) Discuss **how** this vulnerability can be detected. (2)
- d) Discuss one (1) method of **fixing** the vulnerability. (3)

3x(10) = [30]

QUESTION 4

Consider the network diagram above. Choose any two (2) potential security vulnerabilities. For each chosen vulnerability:

- Briefly discuss the security vulnerability. (3)
- Discuss how an improvement should be implemented. (7)

2×(10) = **[20]**

QUESTION 5

Considering your research project for this semester, briefly discuss the vulnerability you identified. Refer to:

- Origin of the vulnerability
- Reason for the vulnerability
- Countermeasure / Fix for vulnerability
- Critique of countermeasure

[15]

— END OF EXAM —

Grand Total: [100]