M14/4/COMSC/HP3/ENG/TZ0/XX



22147013

**Computer science**

**HIGHER level**

**Paper 3**

Monday 19 May 2014 (afternoon)

1 hour

INSTRUCTIONS TO CANDIDATES

* Do not turn over this examination paper until instructed to do so.
* Answer all questions.
* The maximum mark for this examination paper is *[30 marks]*.

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| 2214-7013 | 2 pages |
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*Answer* ***all*** *questions.*

1. Outline the meaning of the following terms:

|  |  |  |
| --- | --- | --- |
| (a) | *threat landscape* | *[2 marks]* |
| (b) | *whitelisting*. | *[2 marks]* |

1. (a) Traditionally, security systems concentrated on the inspection of traffic entering

a network. By making reference to specific malware, explain why Intrusion

Prevention Systems (IPS) should scan for traffic **leaving** a network. *[4 marks]*

1. Denial of Service (DoS) attacks are designed to overload a system, making it cease to function as normal.

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| --- | --- | --- |
| By looking at **one** particular type of DoS attack listed on page 4 of the |  |  |
| Case Study, explain **both** how the attack is designed to interrupt the operation |  |  |
| of a company network **and** the measure(s) that the company should take to | *[4 marks]* |  |
| counteract such attacks. |  |

1. The SSL protocol has been incorporated into the transfer of data across networks in order to provide an additional layer of security. Explain how it is possible for

man-in-the-middle attacks to successfully intercept data sent using this protocol. *[6 marks]*

1. The chief executives of the pharmaceutical company, Western Heights, decided to follow the lead of many major enterprises in embracing a *Bring Your Own Device* (BYOD) policy with its workforce. This decision was taken after lengthy meetings with its security officers, many of whom expressed doubts about the wisdom of such a policy.

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| --- | --- | --- |
| By including reference to the rationale behind this decision, discuss **both** the security |  |  |
| concerns that would have been expressed by the security officers **and** the measures |  |  |
| that should now be taken in order to ensure the safety of the company’s data taking | *[12 marks]* |  |
| into account this new policy. |  |

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