22147013

**COMPUTER SCIENCE**
**HIGHER LEVEL**
**PAPER 3**

International Baccalaureate®
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Bachillerato Internacional

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]*.

*Answer **all** questions.*

1.  Outline the meaning of the following terms:

    (a)  *threat landscape*                                                                              *[2 marks]*

    (b)  *whitelisting*.                                                                                 *[2 marks]*


2.  (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]*

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

         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
         counteract such attacks.                                                             *[4 marks]*


3.  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]*


4.  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.

    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
    into account this new policy.                                                             *[12 marks]*

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