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**COMPUTER SCIENCE
HIGHER LEVEL
PAPER 3**

Tuesday 18 November 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. Define the following two attacks.

(a) *zero-day* [2 marks]

(b) *man-in-the-middle* [2 marks]

2. (a) Describe the role of Botnets in the successful execution of a DDoS (Distributed Denial of Service) attack. [4 marks]

(b) Explain **two** advantages of using a proxy server as part of a school network that accesses the internet. [4 marks]

3. Susan Woo considers social networking to be an area that will see an increase in attacks by cyber-criminals.

With reference to different forms of social networking, explain why Susan Woo considers this area to be a threat to the security of major companies. [6 marks]

4. With the change in the threat landscape over the last few years, *Western Heights* has reviewed its approach to network security. They have changed from using signature-based firewalls on the network perimeter to a much more comprehensive system of prevention and monitoring, with the aim of minimizing threats to the organization.

By focussing on innovations in software and hardware, discuss how the security systems of *Western Heights* have changed in order to minimize the threats coming from outside of the organization. [12 marks]