

INSTITUTE OF TECHNOLOGY BLANCHARDSTOWN

Year	Year 4
Semester	Repeat, Semester 1
Date of Examination	
Time of Examination	Wednesday 21 st August 2013 1.00pm – 3.00pm

Prog Code	BN402	Prog Title	Bachelor of Science (Honours) in Computing	Module Code	COMP H4014
Prog Code	BN104	Prog Title	Bachelor of Science (Honours) in Computing	Module Code	COMP H4014

Module Title	Network Security
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Internal Examiner(s): Michael O'Donnell

External Examiner(s): Michael Barrett
Dr. Tom Lunney

Instructions to candidates:

- 1) To ensure that you take the correct examination, please check that the module and programme which you are following is listed in the tables above.
- 2) This paper consists of four questions. You must do Question 1 and any other two questions.
- 3) This paper is worth 100 marks. Question 1 is worth 40 marks and each of the other questions is worth 30 marks.

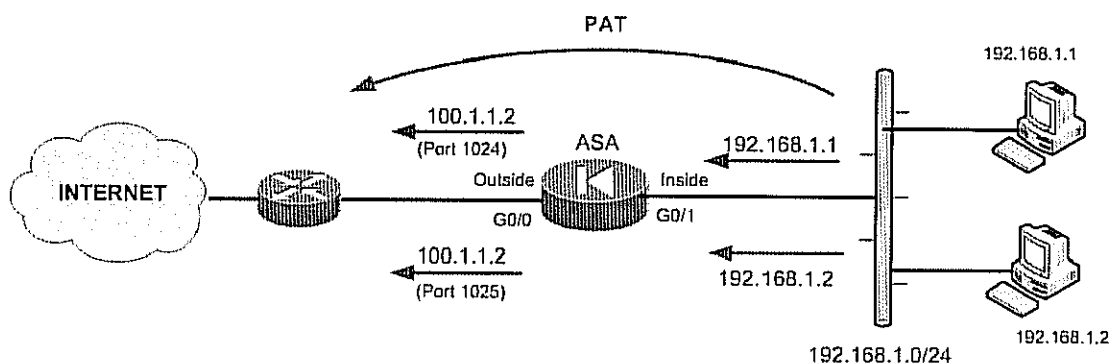
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Question 1 (Compulsory Question)

- (a) Tabulate the primary differences between the *RADIUS* and *TACACS+* protocols.

(8 marks)

(b)



Configure *Port Address Translation* for the topology in the diagram above.

(8 marks)

- (c) Briefly outline the three functional components of the AAA architecture.

(8 marks)

- (d) Compare Stateless and Stateful Packet Filtering.

(8 marks)

- (e) Identify and briefly describe any two advanced ASA features.

(8 marks)

Answer any two questions from Questions 2, 3 and 4.

Question 2

Describe in detail the **ten** steps involved in the configuration of an IOS router Site-to-Site VPN using Digital Certificates. Give the key commands that are used in each step.

(30 marks)

Question 3

- (a) Describe, with the aid of a diagram, how a *Digital Signature* functions.

(10 marks)

- (b) A *Public Key Infrastructure (PKI)* provides a framework upon which you can base security services, such as encryption, authentication, and nonrepudiation.

Describe the operation of *PKI* under the following headings:

- (i) The role of Certificate Authorities. Include in your answer reference to how an end user retrieves a CA certificate and how a certificate request for a Digital Certificate is made to the Certificate Authority.
- (ii) How an end user Alice ensures Data Integrity and Confidentiality in the exchange of data with another end user Bob.

Illustrate your answers with a diagram.

(20 marks)

Question 4

- (a) Describe the five steps involved in the manual configuration of a *Zone-Based Firewall*.

(15 marks)

- (b) Describe the operation of *Zone-Based Firewalls* regarding zone membership rules.

(15 marks)