



COS2626

May/June 2016

COMPUTER NETWORKS I

Duration 2 Hours

80 Marks

EXAMINERS

FIRST

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SECOND

DR BL TAIT

Use of a non-programmable pocket calculator is permissible.

Closed book examination.

This examination question paper remains the property of the University of South Africa and may not be removed from the examination venue

Please answer all questions in sequence

This paper consists of 3 pages including this one

TURN OVER

Question 1 [28]

- 1 1 Under what circumstances would a connectionless protocol be useful? Give an example (2)
- 1 2 Explain the concept of sequencing in the transport layer. Refer to parameters, synchronization and a scheme in your answer (7)
- 1 3 Explain how **time division multiplexing** works and how it may be inefficient under certain circumstances (7)
- 1 4 Draw a diagram to illustrate the phenomenon of **crosstalk** (4)
- 1 5 Convert the following binary address to dotted decimal notation
10011011 01000001 00000110 00100000 (4)
- 1 6 List four differences between **IPv4** and **IPv6**. (4)

Question 2 [31]

- 2 1 Under what circumstances would you opt to use a cut-through switch? (4)
- 2 2 Explain what a **routing metric** is and what factors are weighed to determine a metric (8)
- 2 3 ISDN is based on a B-channel and a D-channel. Explain what the B and D channels are, what they carry respectively and what switching techniques are used (6)
- 2 4 Compare **active** scanning to **passive** scanning as it pertains to association (7)
- 2 5 Suppose you have a class-C network with an id of 196.134.65.0. Calculate the subnet mask, showing all steps, that will divide this network into fourteen different subnets. Give the modified mask in decimal dotted notation (6)

TURN OVER

Question 3 [21]

- 3 1 List the names of the protocols that are used in a remote access internet connection (5)
- 3 2 Explain what a **honeypot** is and why it is important for network security (5)
- 3 3 What is the primary use of the following security methods? (5)
- a) SSH
 - b) Radius
 - c) EAP
 - d) IPSec
 - e) PGP
- 3 4 Answer the following questions with regard to disaster recovery
- a) What is a **warm** site? (3)
 - b) What is the purpose of a disaster recovery plan? (2)
- 3 5 What is a polymorphic virus? (1)

TOTAL 80