

KENYA METHODIST UNIVERSITY

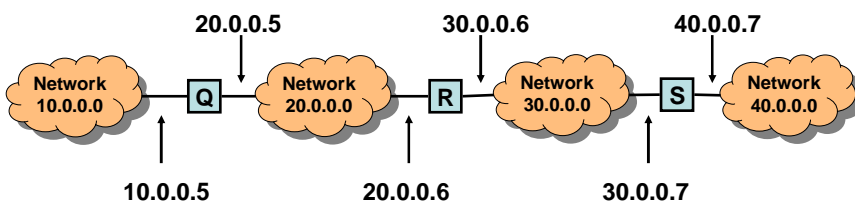
TRI-MESTER EXAM, APRIL 2007

FACULTY : SCIENCES
DEPARTMENT : MATHEMATICS AND COMPUTER SCIENCE
COURSE CODE : COMP 444
COURSE TITLE : INTERNET AND APPLICATIONS
TIME : 3 HOURS

Instructions Answer ALL questions in SECTION A and only TWO questions in SECTION B.

Section A. Answer all questions (32 marks total)

- 1 The following diagram and table shows the routing table for router R.
 - a Provide the routing tables for Q and S (6 marks)
 - b Which routers will benefit most from using a default route? Why? (3 marks)



Routing Table for R	
To Reach These Hosts	Route To This Address
20.0.0.0	Deliver Directly
30.0.0.0	Deliver Directly
10.0.0.0	20.0.0.5
40.0.0.0	30.0.0.7

- 2 Within the IP packet header, (3 marks)
 - a what is time to live (TTL) and
 - b what does a router do with it?
- 3 A user decides to change his/her static IP address in an attempt to masquerade activity within a subnet. (2 marks)
 - a Can the actual machine used still be identified?
 - b Why or why not?
- 4 What is a subnet and how can it be used to increase the IP address space of an organization? (2 marks)
- 5 Define the following terms (6 marks, 2 each)
 - a Server
 - b Client
 - c Proxy

- 6 What is the purpose of 'cookies' in relation to an internet browser and HTTP? (2 marks)
- 7 What do the languages or environments of Active Server Pages (ASP), Java, PERL, PHP, etc. provide in relation to internet applications? (2 marks)
- 8 What is HTML? (2 marks)
- 9 Give two examples of proxy server applications. (2 marks)
- 10 What is a firewall? (2 marks)

Section B Answer any 2 questions (11-14) and specifically identify which are to be graded (20 Total Marks)

- 11 Describe each of the TCP/IP protocol communications stack layers. (10 marks)
- 12 For IP addressing conventions:
 - a Exactly how many class A, B, and C networks can exist? (6 marks)
 - b Write a pseudo-code (program fragment) in your favorite programming language that reads an IP address in dotted decimal form, determines whether the address is class A, B or C, and prints the network and host portions. (4 marks)
- 13 A web-present company wants to add a method of gathering web site visitor information for advertising, information gathering purposes, and reply to questions. Describe the approach you would take in either setting up a user input method or a means of capturing user input. Consider capturing what you might think is relative to the needs of a typical marketing company.
 - a What questions might you ask? (4 marks)
 - b How and where would you store the relevant information assuming more than one interactive screen is needed during and after interactive session? (3 marks)
 - c What web browser feature would you use to display and capture the information? (3 marks)
- 14 The design of internet node equipment/software attempts efficient use of internet bandwidth through caching data and webpage content.
 - a Identify the various levels of this caching (4 marks).
 - b How might you design a web page to insure that 'fresh' data are always available? (3 marks)
 - c Describe what is meant by transparent caching.(3 marks)