



MASENO UNIVERSITY

UNIVERSITY EXAMINATIONS 2017/2018

SECOND YEAR FIRST SEMESTER EXAMINATIONS FOR THE DEGREE OF BACHELOR OF SCIENCE IN INFORMATION TECHNOLOGY

MAIN CAMPUS

CIM 205: INTERNET TECHNOLOGY

Date: 16th February, 2018

Time: 3.30 - 6.30 pm

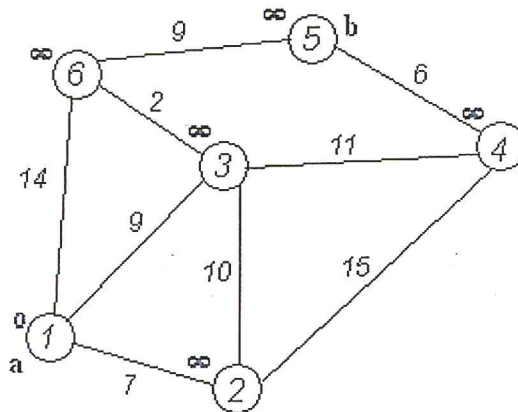
INSTRUCTIONS:

- Answer ALL questions in SECTION A and any TWO from SECTION B



SECTION A (30 MARKS)
ANSWER ALL QUESTIONS IN THIS SECTION
SECTION A

- a) Define the term internet. (1 Mark)
- b) Describe how the internet is different from the world wide web (www) (2 Marks)
- c) What do you understand by the term routing? (2 Marks)
- d) List the two ways of routing? (2 marks)
- e) In the routing diagram below, use the Dijkstra Shortest Path First Algorithm to find the shortest path and the respective lowest cost between a and b (5 Marks)



- f) Define the term communication protocol (2 Mark)
- g) HTTP is a stateless, application-layer protocol for communicating between distributed systems, and is the foundation of the modern web. What are some of the features that make HTTP a simple but powerful protocol? (6 Marks)
- h) Give any two factors that determine the cost (distance) in routing (2 Marks)
 - Bandwidth
 - Hop Count
 - Physical Distance
- i) Describe how subnet masks are used to determine the network number (8 Marks)

SECTION B
ATTEMPT ANY TWO QUESTIONS

QUESTION 2

- a. The Times International, an online news site wants to set up shop in Kenya. The Kenyan subsidiary requires an internet connection that is secure and reliable that will enable it not only connect with the American mother company through a virtual private network, but also host its own web servers that will host the mail system as well as the web version of The Times Kenya. Design a possible internet connection architecture for The Times Kenya and justify the role of each component in your architecture (11 Marks)
- b. In HTTP, the premise of identification is to tailor the response in order to provide a personalized experience. One of the ways to achieve this is through cookies. Which other ways can be used to achieve this? (3 Marks)
- c. What is the motivation towards creating websites using the Responsive Web Design (RWD) angle (6 Marks)?

QUESTION 3

- a. Discuss the ways in which you can implement search engine optimization for your site. (7 Marks)
- b. Explain using a well-labeled diagram the structure of the world wide web (www). (6 marks)
- c. What is Dynamic Routing? Use an example to explain how it works? (7 marks)

QUESTION 4

- a. List two problems of using HTML as a design language. What's the general solution? How does the solution solve the two problems you listed? (4 Marks)
- b. The alternative to building the above information system from scratch is the use of themed Content management Systems. What some of the advantages that a themed Content management Systems will offer? (4 Marks)
- c. With examples, briefly explain any **eight** general roles/ functions of protocols. (8 Marks)
- d. In typical routing, give any factors contribute to refining of path selections? (4 Marks)

QUESTION 5 (20 MARKS)

- a. IPv4 addresses have classes A-E. Work out the IP ranges of the first octate of classes A,B and C. (6 Marks)
- b. Describe the operation of a Meta Search engine (6 Marks)
- c. Discuss the four main responsibilities of the Internet Assigned Numbers Authority as a governing body? (8 Marks)