



RAJARATA UNIVERSITY OF SRI LANKA
FACULTY OF APPLIED SCIENCES

B.Sc. (General) Degree in Information and Communication Technology
Second Year - Semester II Examination – September/October 2020

ICT 2406 – INTERNET PROGRAMING

Time: Three (03) hours

Answer **ALL** questions

1.

- a) What are the main functions of internet protocol?
(4 marks)
- b) What are the differences between dynamic routing and statistic routing?
(6 marks)
- c) Suppose Host A sends two TCP segments back-to-back to Host B over a TCP connection. The first segment has sequence number 90. The second has sequence number 110.
 - I. How much data is in the first segment?
(2 marks)
 - II. Suppose that the first segment is lost but the second segment arrives at B. What will be the acknowledgment number in the acknowledgment that Host B sends to Host A?
(3 marks)
- d) A data packet header normally contains sequence number. Why is it important to include sequence number in header?
(5 marks)

2.

- a) What are the Proprietary protocols? What are the advantages and disadvantages of Proprietary protocols?
(4 marks)

- b) Briefly describe multiplexing and de-multiplexing. (4 marks)
- c) Describe how web caching can reduce the delay in receiving a requested object. State whether web caching reduces the delay for all objects requested by a user or for only some of the objects. Explain why. (6 marks)
- d) Assume that a network has been assigned the 132.45.0.0/16 address block. You need to establish eight subnets.
- i. How many binary digits are required to define eight subnets? (3 marks)
 - ii. Specify the extended-network-prefix that allows the creation of 8 subnets (3 marks)

3.

- a) What is the difference between network architecture and application architecture? (3 marks)
- b) HTTP response message has three sections. What are those sections? Briefly describe the functions of these sections. (6 marks)
- c) DNS provides a few other important services in addition to translating hostnames to IP addresses. Briefly describe these services. (5 marks)
- d) Suppose Alice, with a web-based e-mail account, sends a message to Bob, who accesses his mail from his mail server using POP3. Discuss how the message gets from Alice's host to Bob's host. Be sure to list the series of application-layer protocols that are used to move the message between the two hosts. (6 marks)

4.

- a) What is VLAN Trunking? (4 marks)
- b) What are the benefits of VLAN? (5 marks)
- c) FTP has two separate connections and one connection is out-of-band. Define the out-of-band connection and explain why it is out-of-band. (5 marks)

- d) "Sockets are also referred to as the Application Programming Interface (API) between the network and the application". State whether above statement is true or false. Justify your answer.

(6 marks)

5.

- a) What are the key distinguishing features of streaming stored audio and video applications?

(3 marks)

- b) What are the differences between distributed systems and centralized systems?

(4 marks)

- c) Write a program for TCP client- server chat application (using java language). Briefly describe each and every functionality of this client server application.

(8 marks)

- d) i. What is NAT (Network Address Translation)?

(2 marks)

- ii. Discuss NAT traversal problems.

(3 marks)

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