



**RAJARATA UNIVERSITY OF SRI LANKA
FACULTY OF APPLIED SCIENCES, MIHINTALE**

**B.Sc. Degree in Information and Communication Technology
Second Year Semester II Examination – April/May 2016**

ICT 2305 – COMPUTER NETWORKS

Answer ALL questions.

TIME: Three (3) Hours

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- Q1.** (a) Discuss the uses of computer networks regarding the following home applications:
- i. Access to remote information.
 - ii. Person-to-person communication. [6Marks]
- (b) Discuss the following disadvantages of computer networking:
- i. Initial installation cost.
 - ii. Hardware failures.
 - iii. Security issues. [9Marks]
- (c) What is network topology? Explain the *bus* network topology. [5Marks]
- Q2.** (a) Explain the need for standard network architectures. [4 marks]
- (b) List the layers of the TCP/IP model. [4 marks]
- (c) Briefly explain the two main transport layer protocols. [6 marks]
- (d) What are the functions of the internet layer? [6 marks]
- Q3.** (a) Explain the following communication tasks in a data communication system:
- i. Transmission system utilization.
 - ii. Recovery. [6 marks]
- (b) What is terrestrial microwave transmission? [4 marks]
- (c) Explain how terrestrial microwave systems send and receive signals. [5 marks]
- (d) List the advantages of terrestrial microwave. [5 marks]

- Q4.** (a) Define multiplexing. Discuss the need for multiplexing in communication networks. [5 marks]
- (b) List the steps in the circuit establishment process in a circuit-switched network. [5 marks]
- (c) Explain why error correction by retransmission is not appropriate for wireless applications. [5marks]
- (d) What is the major disadvantage in character-stuffing? Explain a technique that can be used to overcome this problem. [5 marks]
- Q5.** (a) What is internetworking and what is an internet? [4 marks]
- (b) Explain the dotted decimal notation in IPv4 using a suitable example. [5 marks]
- (c) What is network mask? Explain its use with suitable example. [6 marks]
- (d) Find the first and the last address of a network if a host IP address is 205.16.37.39/28. [5 marks]