

UNIVERSITY OF RUHUNA  
BACHELOR OF COMPUTER SCIENCE (GENERAL) DEGREE  
LEVEL III (SEMESTER I) EXAMINATION – May 2023

CSC3142 - Internet Services and Protocols

Duration: 2 hours

Answer all Four (4) Questions.

1.
  - a. What is the primary purpose of using the Internet Protocol (IP) in computer networking?
  - b.
    - i. Briefly explain network topology providing **two (02)** points.
    - ii. Discuss the main difference between a star topology and a bus topology in computer networking.
  - c.
    - i. What was the purpose of the development of the TCP/IP protocol suite?
    - ii. Write down **two (02)** differences between 'Connectivity Devices' and 'Internetworking Devices' giving an example for each.
    - iii. What is the difference between a layer 2 and a layer 3 switch? Explain when would you use each switch in a network architecture?
2.
  - a.
    - i. Briefly explain the function of the Domain Name System (DNS) in a computer network.
    - ii. Write down **three (03)** characteristics of DNS.
  - b.
    - i. Briefly explain the Passive communication providing **two (02)** advantages.
    - ii. Describe the role of Multipurpose Internet Mail Extension protocol (MIME)
  - c. The documents in the WWW can be grouped into three broad categories. List these **two (03)** categories and briefly explain one of them in detail.
  - d. What is the purpose of the Common Gateway Interface (CGI) in web development?

3.

- a. A system administrator is responsible for managing and maintaining computer systems, networks, and servers to ensure they operate effectively and securely.
  - i. What are **three (03)** common challenges encountered by system administrators?
  - ii. Briefly explain the role of system administrator in disaster recovery providing **four (04)** points.
  - iii. Briefly explain network capacity planning providing **three (03)** points.
- b.
  - i. What are **four (04)** essential responsibilities that network administrators must perform as part of network maintenance.
  - ii. Network administrators keep a journal/logbook to record their activities. Write down **three (03)** advantages of keeping a logbook.
- c.
  - i. Briefly explain the role of Proxy Server.
  - ii. How does the proxy server enhance the performance of web applications?

4.

- a.
  - i. Briefly explain asynchronous learning, providing **two (02)** examples.
  - ii. Discuss the benefits and drawbacks of e-learning, in comparison with traditional learning providing **two (02)** points for each.
- b.
  - i. List down **three (03)** common computer security attacks and their countermeasures.
  - ii. Briefly explain the hardware firewall providing **three (03)** points.
  - iii. Write down **three (03)** limitations or challenges associated with the use of firewalls in network security?
- c. "SSH is more secure compared to Telnet". Do you agree with this statement? Explain your answer providing **three (03)** points.

1.

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