



UNIVERSITY EXAMINATIONS

**THIRD YEAR EXAMINATION FOR THE AWARD OF THE DEGREE OF
BACHELOR OF SCIENCE IN MATHEMATICS WITH COMPUTING
SECOND SEMESTER 2022/2023
[JANUARY-APRIL, 2023]**

COMP 314: COMPUTER NETWORKS

STREAM: Y3S2

TIME: 2 HOURS

DAY: MONDAY, 3:00 – 5:00 PM

DATE: 17/04/2023

INSTRUCTIONS

- 1. Do not write anything on this question paper.**
- 2. Answer question ONE and any other TWO questions.**

QUESTION ONE (30MARKS)

- Explain data communication and computer networks by establishing the relationship of the two. (2marks)
- Describe four fundamental characteristics of effectiveness of any data communications. (4marks)
- Define the following terms as applied in computer networks. (4marks)
 - Internetwork
 - Client operating system
 - Protocol
 - Physical Topology
- With the aid of a diagram, explain how mesh topology is implemented. (4marks)
- Describe the tasks performed by a switch. (6marks)
- Discuss any three advantages and disadvantages of CSMA/CD. (6marks)
- Differentiate between packet switching and circuit switching. (4marks)

QUESTION TWO (20MARKS)

- a. Describe any four factors that influence the choice of a transmission media. (8marks)
- b. Describe the media and media connectors used in the following networking topologies. (4marks)
 - i. Ring topology
 - ii. Bus topology
- c. Describe characteristic of the FDDI networking standard. (4marks)
- d. State any four features of fast Ethernet technology. (4marks)

QUESTION THREE (20MARKS)

- a. Describe any three advantages of networking. (6marks)
- b. Use well labeled diagrams to represent the following topologies and describe how they work. (9marks)
 - i. Ring
 - ii. Bus
 - iii.** Star
- c. Explain two types of packet switched networks. (5marks)

QUESTION FOUR (20MARKS)

- a. Two devices communicate with each other by sending and receiving data. With the aid of a well labeled diagrams, discuss three ways data can flow between the communicating devices. (9marks)
- b. Explain two forms of transmission media as applied in computer networks. (5marks)
- c. By using a diagram, discuss two types of data transmission modes in data communication. (6marks)

QUESTION FIVE (20MARKS)

- a. Explain circuit switching and describe three phases of circuit switching techniques. (8marks)
- b. Using a diagram, explain any four components of a data communication model. (8marks)
- c.** State and explain any four types of network servers. (4marks)