



**JARAMOGI OGINGA ODINGA UNIVERSITY OF SCIENCE AND TECHNOLOGY
SCHOOL OF INFORMATICS AND INNOVATIVE SYSTEMS
BACHELOR OF SCIENCE IN CSF/ICT/BIS
JANUARY /APRIL 2025
YEAR 1 SEMESTER 2**

MAIN CAMPUS

COURSE CODE: ICB 3104

COURSE TITLE: DATA COMMUNICATION PRINCIPLES

EXAM VENUE: LAB 7/ LAB 8

STREAM: CSF/ICT/BIS

TIME: 2HOURS

DATE: 24/4/2025

SESSION: 9.00-11.00

INSTRUCTIONS

- 1. Answer question ONE (compulsory) and any other Two questions.*
- 2. Candidates are advised not to write on the question paper*
- 3. Candidates must hand in their answer booklet to the invigilator while in the examination room*
- 4. No mobile devices (e.g. laptops, phones. etc.) are allowed into the Examination Room*
- 5. This paper consists of two printed pages*

QUESTION ONE (30 MARKS)

- a) Define Data Communication (2mks)
- b) Explain two types of data (4mks)
- c) Differentiate between internet and intranet (4mks)
- d) Write the following acronyms in full
 - i. TCP (1mk)
 - ii. UDP (1mk)
 - iii. SMTP (1mk)
 - iv. DNS (1mk)
- e) Define Protocol as used in data communication (2mks)
- f) State the three elements of Protocol (3mks)
- g) Explain three Models of data transmission using diagrams (6mks)
- h) What is attenuation? (2mks)
- i) Explain the concept of Modem (3mks)

QUESTION TWO (20 MARKS)

- a) What is Network topology (2mks)
- b) Explain four different types of topology using a well labeled diagrams (16mks)
- c) Differentiate between Ethernet and Token ring as used in Network (2mks)

QUESTION THREE (20 MARKS)

- a) Define OSI mode (2mks)
- b) Explain the OSI reference model with neat diagram (14mks)
- c) Explain the following layers in TCP/IP.
 - i. Host to network layer (2mks)
 - ii. Internet layer (2mks)

QUESTION FOUR (20 MARKS)

- a) Explain the Shielded Twisted Pair(STP) and Unshielded Twisted Pair(UTP) (4mks)
- b) Explain the Coaxial cable in detail (4mks)
- c) Explain Fiber Optical in detail (3mks)
- d) write short notes on unguided media (3mks)
- e) write short notes on Circuit Switching ,Packet Switching and Message Switching (6mks)

QUESTION FIVE (20 MARKS)

- a) Define networking (2mks)
- b) Explain three types of computer network (6mks)
- c) Explain two objectives of network (4mks)
- d) Explain two types of networking devices (4mks)
- e) Define computer network architecture (2mks)
- f) Explain two types of servers (2mks)