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
DATE: 24/4/2025 SESSION: 9.00-11.00
TIME: 2HOURS

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)