



JARAMOGI OGINGA ODINGA UNIVERSITY OF SCIENCE AND TECHNOLOGY

SCHOOL OF INFORMATICS AND INNOVATIVE SYSTEMS

DEPARTMENT OF INFORMATION SYSTEMS

**UNIVERSITY EXAMINATION FOR THE DEGREE BACHELOR OF
INFORMATION COMMUNICATION AND TECHNOLOGY
YEAR THREE: SEMESTER ONE**

2ND YEAR 2ND SEMESTER 2024/25 ACADEMIC YEAR

MAIN CAMPUS

COURSE CODE: ITB 1106

COURSE TITLE: FUNDAMENTALS OF ICT

DATE: 22/4/2025

TIME: 2HOURS VENUE: LAB 8

INSTRUCTIONS

- 1. Answer Question 1 (Compulsory) and ANY other TWO questions**
- 2. Candidates are advised not to write on the question paper**
- 3. Candidates must hand in their answer booklets to the invigilator while in the examination room**

SECTION A: Short Answer Questions (30 Marks)

Questions (30 Marks)

- a) Define Information and Communication Technology (ICT) and state its importance in modern society. **(4 Marks)**
- b) Differentiate between System Software and Application Software, giving two examples of each. **(4 Marks)**
- c) Identify and explain any three components of a computer system **(6 Marks)**
- d) Briefly describe the OSI reference model, stating its importance in networking. **(8 Marks)**
- e) Define IP Addressing and explain the difference between IPv4 and IPv6 **(4 Marks)**
- f) What are the advantages of Cloud Computing in ICT environments? **(4 Marks)**

SECTION B: Structured Questions (40 Marks)

Question Two (20 Marks)

- a) Explain three key cybersecurity threats and their preventive measures. **(5 Marks)**
- b) Define Assistive Technology and give two examples of assistive tools used in ICT. **(5 Marks)**
- c) Explain three file management techniques for efficient organization and retrieval of files. **(5 Marks)**
- d) What is the difference between open-source software and commercial software? Give an example of each. **(5 Marks)**

Question Three (20 Marks)

- a) Explain the seven layers of the OSI model, highlighting the role of each layer.

(8 Marks)

b) Describe the different types of computer networks and their applications. **(5 Marks)**

c) Discuss the impact of ICT in E-commerce and online business transactions.

(5 Marks)

d) Discuss any five ICT accessibility principles that should be considered when designing user-friendly applications.

(10 Marks)

Question Four (20 Marks)

a) Explain the functions of an operating system and describe any three types of operating systems. **(4 Marks)**

b) Define computer hardware and categorize it into input, output, processing, and storage devices with examples. **(6 Marks)**

c) Differentiate between wired and wireless networking, listing two advantages and disadvantages of each. **(4 Marks)**

d) Discuss the role of Artificial Intelligence (AI), the Internet of Things (IoT), and Cloud Computing in shaping modern ICT solutions. **(6 Marks)**

Question Five (20 Marks)

A large organization has recently suffered a data breach due to weak security protocols. As an ICT professional, answer the following:

a) Identify and explain at least three security threats that could have caused the data breach. **(10 Marks)**

b) Suggest five cybersecurity measures that the company should implement to prevent future attacks. **(10 Marks)**

c) Discuss the ethical and legal implications of data breaches in ICT. **(10 Marks)**