

**THE UNITED REPUBLIC OF TANZANIA
NATIONAL EXAMINATIONS COUNCIL OF TANZANIA
ADVANCED CERTIFICATE OF SECONDARY EDUCATION
EXAMINATION**

136/2

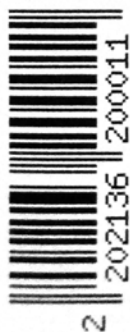
COMPUTER SCIENCE 2
(For Both School and Private Candidates)

Time: 3 Hours

Year: 2022

Instructions

1. This paper consists of **three (3)** questions.
2. Answer **two (2)** questions including question **one (1)**.
3. Save your work on the desktop in the folder named by your **Examination Number**.
4. Save your work by using the 1997-2003 version of the MS Office software.
5. Check whether the **printed** work(s) are similar to the **softcopy** saved in the folder.
6. Submit printed codes and screenshots together with the softcopy of your work(s).
7. Cellular phones and any unauthorized materials are **not** allowed in the examination room.
8. Type your **Examination Number** on every page of your softcopy work(s).



1. (a) In the year 2020, ABC Secondary School expanded its enrollment capacity twice higher than the normal rate. The increase in number of students made it difficult to manual calculation and report of academic performance for each student. Use an array concept to develop a C++ program which prompts a user to enter the number of students, student name and scores for the seven subjects. The program should compute total and average performance for each student. **(12 marks)**
- (b) The XVDF football Stadium has a total capacity of 200 to accommodate football fans. The stadium manager wants to keep track of the number of attended followers for each match in real time. You are assigned to develop a C++ program that read gender, count and display number of attended females, males, total followers and remained slots. The program must be able to print the message *"sorry the pitch is full"* when the count reaches maximum entries. **(13 marks)**
2. (a) The director at Open Mind nursery school wants to develop the system that will assist teachers to demonstrate the concept of vowels present in different names. The teachers also had challenges in counting the number of vowels in the names presented. You have been asked to develop a JavaScript function that will prompt students to enter the name in small letters and count the number of vowels present when the user clicks the button OK. Use message box given in Figure 1 to accomplish the task.

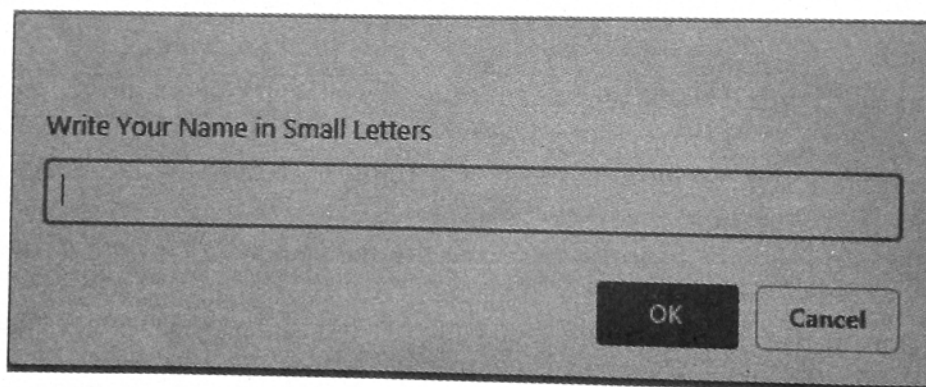


Figure 1

- (b) The Wakwetu SACCOSS offers different types of loans to its members with annual interest rate of 12% per year. A member may request the loan with desired amount to be repaid within a period requested. The SACCOSS management is in need of a program to manage the loan processing;
- (i) Design an interface using HTML which will enable the SACCOSS treasury to enter the loan amount, interest rate and repayment period in years.
- (ii) Automate the interface with JavaScript such that, both the treasury and a member would get the loan repayment schedule upon when they click on the button "Loan Statement" as indicated in Figure 2.

Wakwetu SACCOS

Calculates loan repayment period

Loan Amount:

Period(years):

Interest Rate(%):

Figure 2

(25 marks)

3. Mwambe High School is facing the problem of tracking the movement of books in its Library. The library contains 250,000 numbers of reference books with large number of borrowers. The Librarian manage the registration of new books, borrowed books and returned books manually which led to redundancies of the data and even inconsistency of the recorded information. The analyst came up with many system interfaces which among them are presented in Figure 3, 4 and 5. The school director intends to design a computerized library management system in order to improve the services delivery in the library. Using a Visual Basic Program;

(a) Create interfaces shown in Figure 3.

Library system

MWAMBE HIGH SCHOOL

Library Management System

Click check box to open the task

Borrow books ☐

Add books ☐

Find books ☐

Figure 3: Home page

(b) Activate the button "Open" together with checkbox "Borrow books" in Figure 3 so that when the Librarian click the "Open" button the new form "Borrow Book" given in Figure 4 will open.

Borrow books

Student Number: 1020

Book Number: XY12

Publisher Name: longhorn

Year Published: 2006

Title: HTML

Send Clear Exit

	Student Number	Book Number	Publisher Name	Year Published	Title
▶	1020	XY12	longhorn	2006	HTML
	1130	AB76	Corialis group	2000	Visual Basic 6
	2300	PG56	Firewall media	2009	Information system

Navigation: [First] [Previous] [Next] [Last]

Figure 4: Borrow Book Form

- (c) Reactivate the button “Open” by activating the checkbox “Add books” in Figure 3 so that when the Librarian click on “Open” button the new form “Add Books” given in Figure 5 will open.

Book Number: XY12

Title: HTML

Publisher Name: longhorn

Year Published: 2006

Buttons: AddBooks, Clear

Book Number	Title	Publisher Name	Year Published
XY12	HTML	longhorn	2006
AB76	Visual Basic 6	Corialis group	2000
PG56	Information system	Firewall media	2009

Navigation: First, Previous, Next, Last

Figure 5: Add Book Form

- (d) Reactivate the button “Open” by activating the checkbox “Find books” in Figure 3 so that the message “Enter the name of the book you are looking for” will appear in the message box when the Librarian clicks the “Open” button.
- (e) Activate the combo box in Figure 4 to display years in numbers.
- (f) Create a database named LibraryDB using Ms-access. Add two tables “borrowBooks” as displayed in Figure 4 and “AddBooks” as displayed in Figure 5.
- (g) Activate the buttons in Figure 4 so that a user should;
 - (i) Click a button “Exit” to exit the form.
 - (ii) Click a button “Send” to send data from the form to the database and
 - (iii) Click a button “Clear” to reset the form data.

(25 marks)