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).

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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 teache 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.

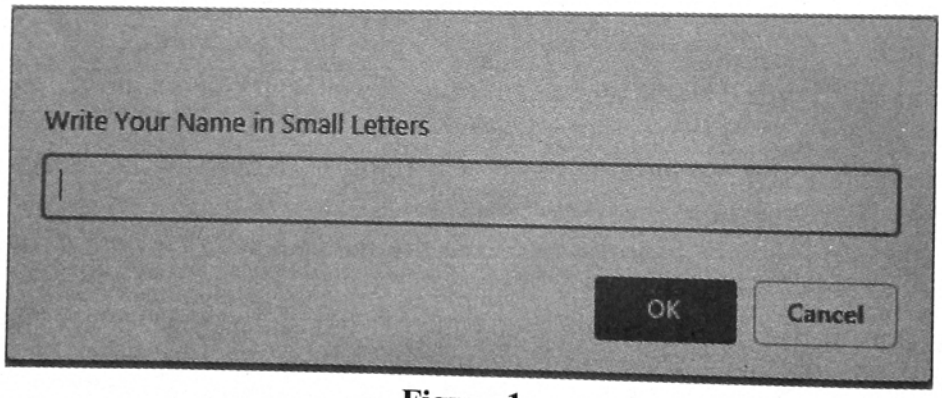

Figure 1

(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.

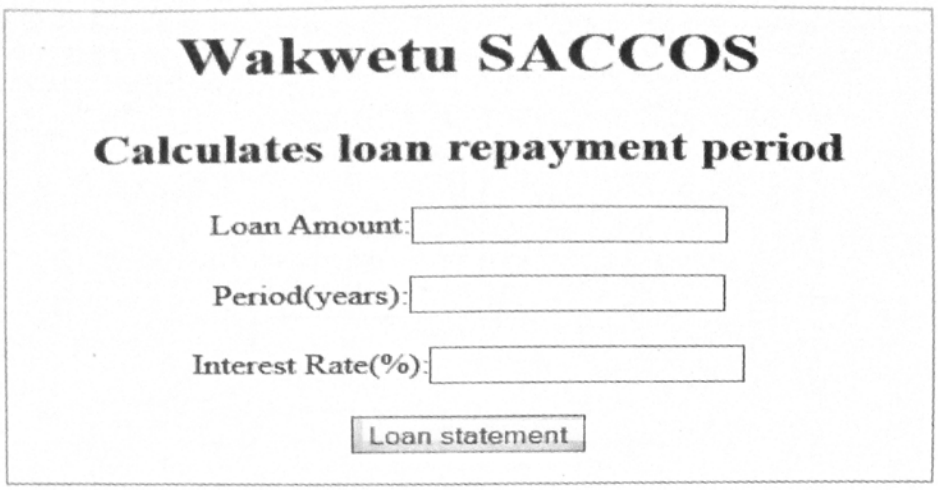

Figure 2

(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 inconsistence 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.

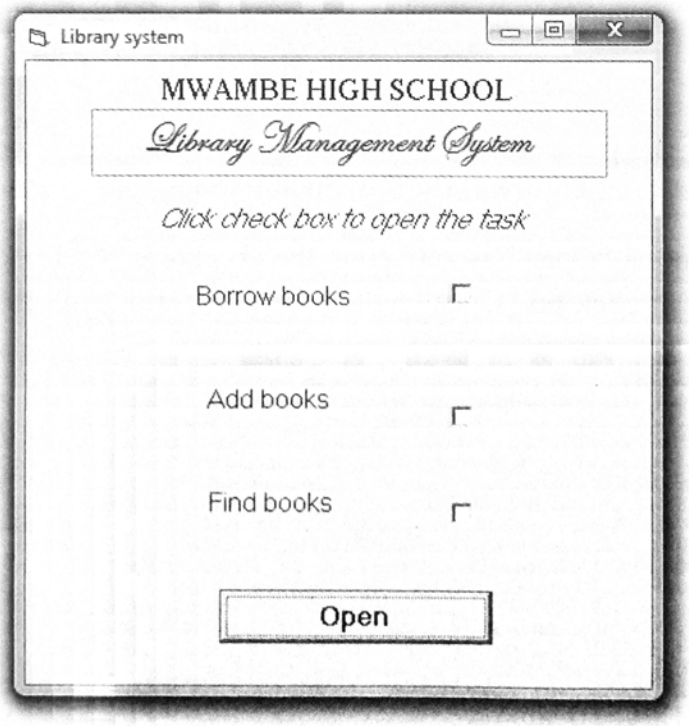

Figure 3: Home page

(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.

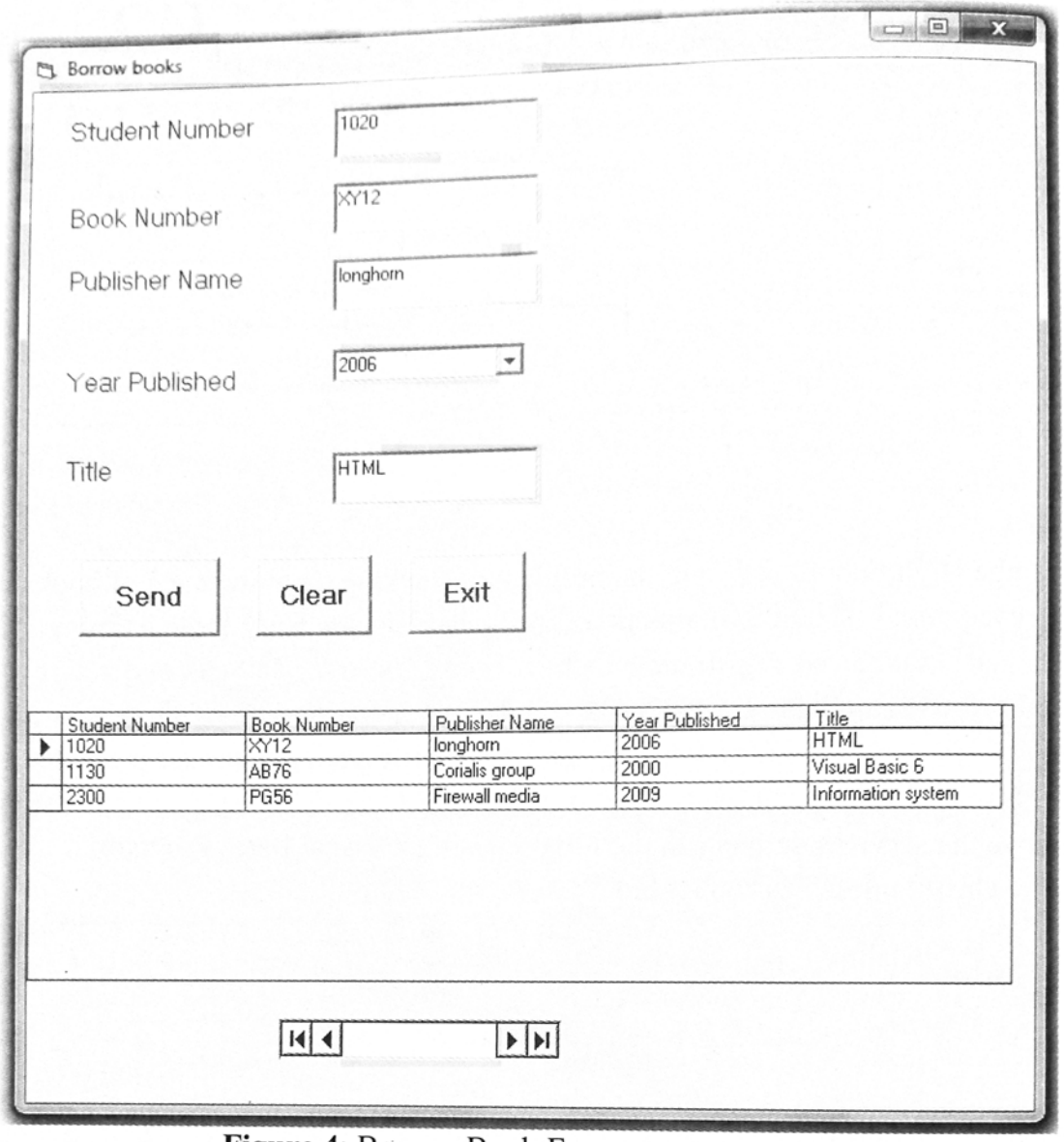

Figure 4: Borrow Book Form

(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.

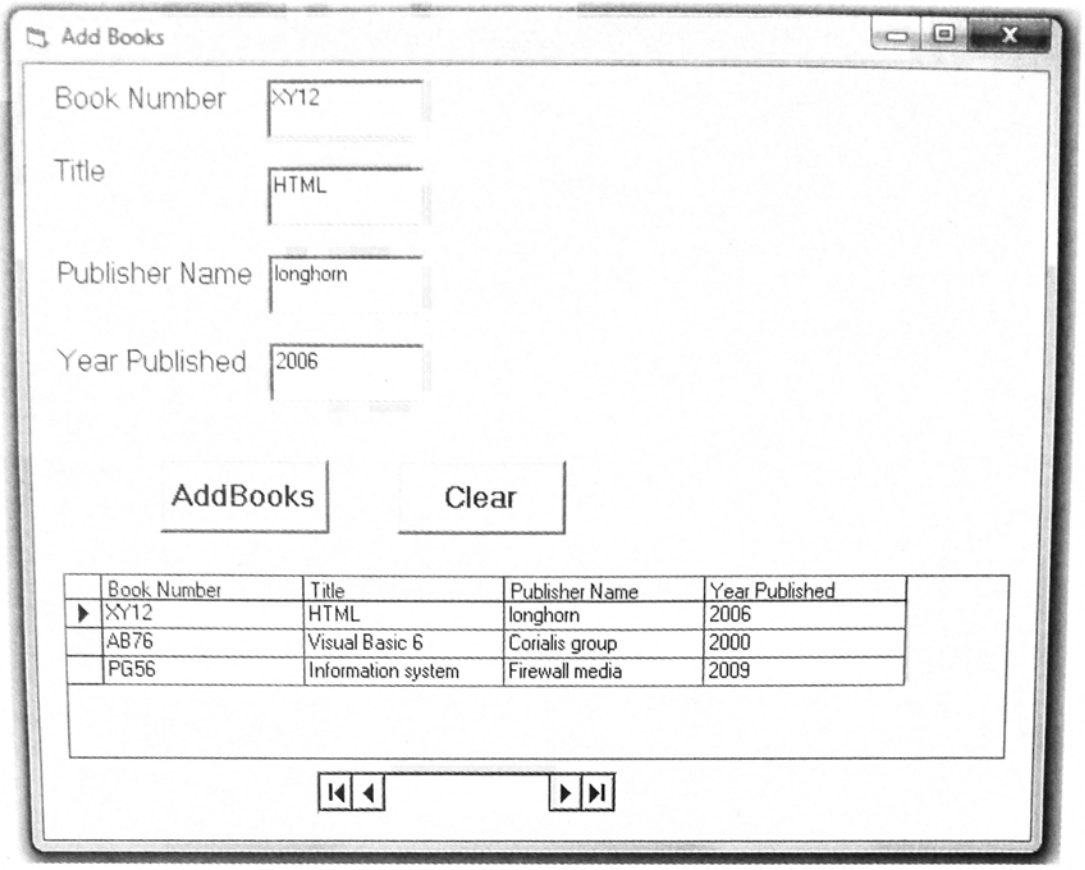

Figure 5: Add Book Form

(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)