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: 2023**

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 unauthorised materials are **not** allowed in the examination room.
8. Type your **Examination Number** on every page of your softcopy work(s).

©SEE2023

1. Considering COVID 19 pandemic outbreak, many places across the world were economically and socially affected. During that moment, lots of social services including schools were in lockdown. Manager at Udzungwa primary school recommended that; mathematics lessons should continue to be taught online alternatively to physical classes. You are required to develop a C++ e-learning program by defining a string array named **str[10],** to compute area of various shapes such as square, rectangle, triangle and circle. It shall also be able to calculate volume of rectangular box and cylinder respectively. The program must allow user to choose "A" if intending to compute Area and "V" if intending to compute Volume, followed by the name and measurements of the shape.

Use the following formula to develop your program:

(i) In case of area use;

Name of the figure	**Formula to use**
Square given by	$\text{side} \times \text{side}$
Rectangle given by	$\text{length} \times \text{width}$
Triangle given by	$\frac{1}{2} \times \text{base} \times \text{height}$
Circle given by	$3.14 \times \text{radius} \times \text{radius}$

(ii) In case of volume use;

Name of the figure	**Formula to use**
Rectangular box given by	$\text{length} \times \text{width} \times \text{height}$
Cylinder given by	$3.14 \times \text{radius} \times \text{radius} \times \text{height}$

2. (a) Most of the Mambo Microfinance Bank (MMB) customers are complaining on the poor handling of their loan calculations. Currently, their loans are being calculated by the bank personnel without sharing necessary information to them. To solve this problem, MMB manager decided to add online loan calculator page on the bank website which will allow customers to manage their loan online. Use HTML to design the interactive loan calculator page as given in Figure 1.

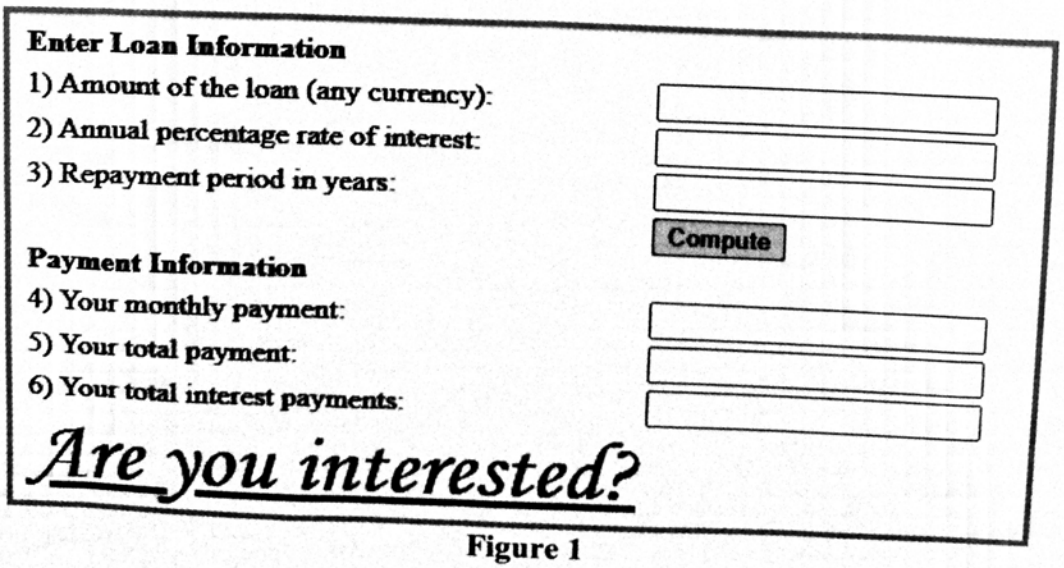

Figure 1

(b) Use JavaScript to activate the page given in Figure 1 in order to calculate monthly payment, total payment and total interest payments after clicking the command button "Compute".

HINT: -

(i) Use the following formula to calculate monthly payment, total payment and total interest payments.

- Monthly payment = $\text{loan}\left[1+\frac{\text{interest}}{100\times12}\right]$
- Total payment = $\text{loan}\left[1+\frac{\text{interest}}{100\times12}\right]^{\text{years}}$
- Total interest payment = total payment – loan.

(ii) The font style and size of the text "Are you interested?" should be Apply "lucida handwriting."

(c) Activate the link "Are you interested?" in Figure 1 to enable interested customer to fill all required details as given in Figure 2.

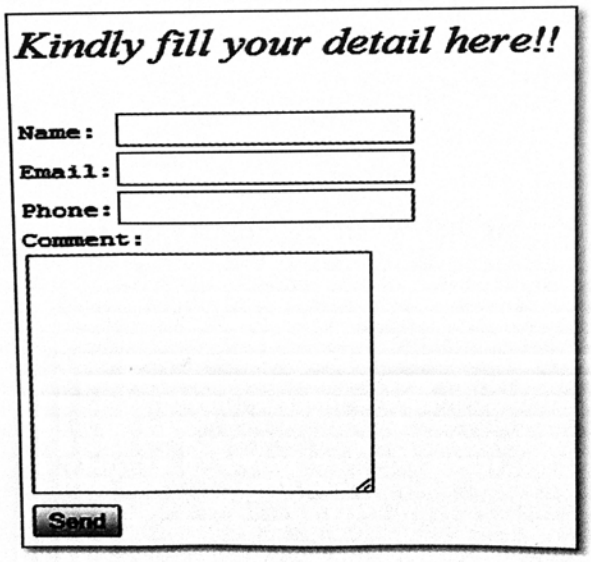

Figure 2

3. Dobi Washing Company provides washing and cleaning services in Arusha region. Currently, the company operates its billing processes manually, which delays the bill provision to customers. To improve its billing process, the company intends to deploy a Computerized Billing System. Among other functions, the system will enable receptionist to bill the customer by selecting the requested services along with its discount for his/her customer as shown in Figure 3. Using Visual Basic Program;

(a) Create an interface form as depicted in Figure 3.

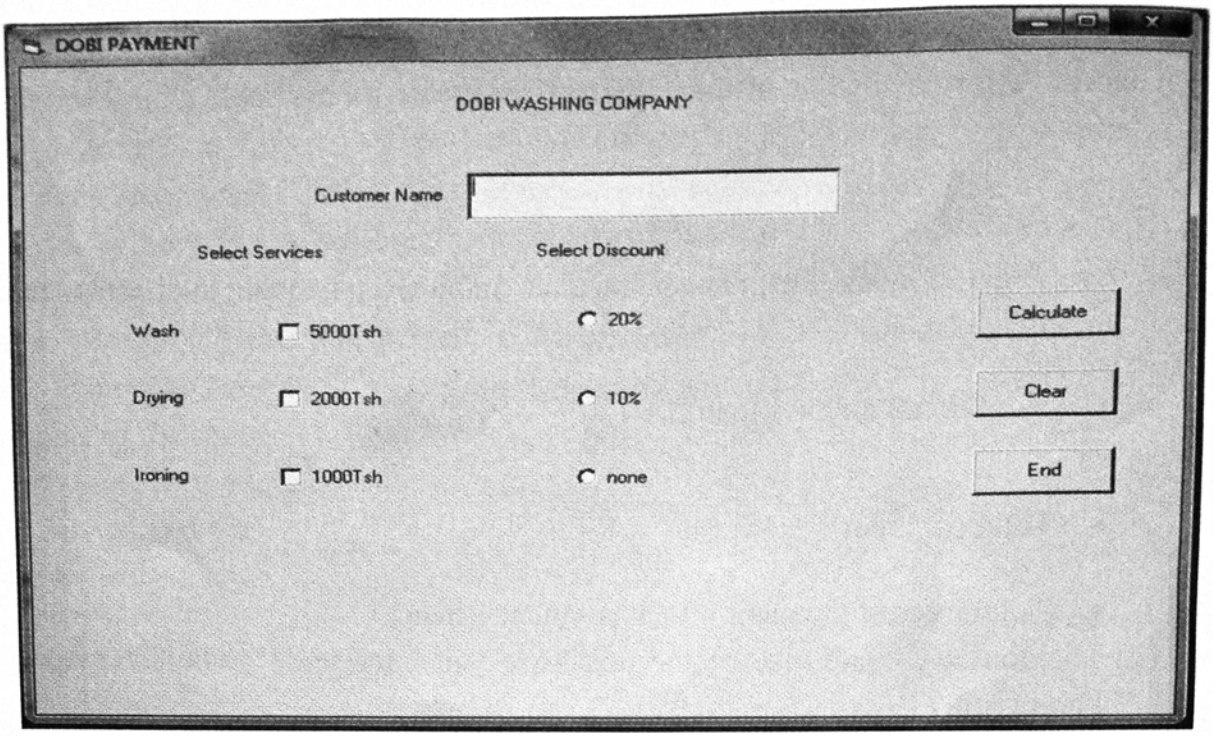

Figure 3: DOB Payment Form

(b) Activate the button "Calculate", so that when a user clicks on, the program displays a Message Box showing calculated price after discount and customer name.

(c) Activate the button "Clear", so that when user clicks on, the program erases all inputs data in the form.

(d) Activate the button "End", so that when user clicks on, the program exits the window form.

(25 marks)