



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

136/2

**COMPUTER SCIENCE 2
(PRACTICAL)
(For Both Schools and Private Candidates)**

Time: 3 Hours

Friday, 05th May 2017 a.m.

Instructions

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

1. (a) Construct a C++ program which takes a character as an input from the keyboard and converts it into capital letter if it is a small letter and viceversa. A program should check the validity of the entered character and display a message "The entered character is not an alphabetical letter" if the input is not a letter.
- (b) Use "For loop", "While loop" and "Do...while loop" to create a C++ program that prints prime numbers up to 31. (HINT: The outputs should be printed on the same screen).

(25 marks)

2. (a) (i) Use Visual Basic program to design the user interface as given below:

The screenshot shows a Visual Basic application window titled "Loan Calculator". Inside the window, there are four text boxes for user input, each with a label to its left: "Loan amount", "Interest rate", "Duration (in months)", and "Check if early payment". The "Check if early payment" is a checkbox, which is currently unchecked. Below the text boxes is a button labeled "Show payment". At the bottom of the form are two buttons: "Clear" and "Exit".

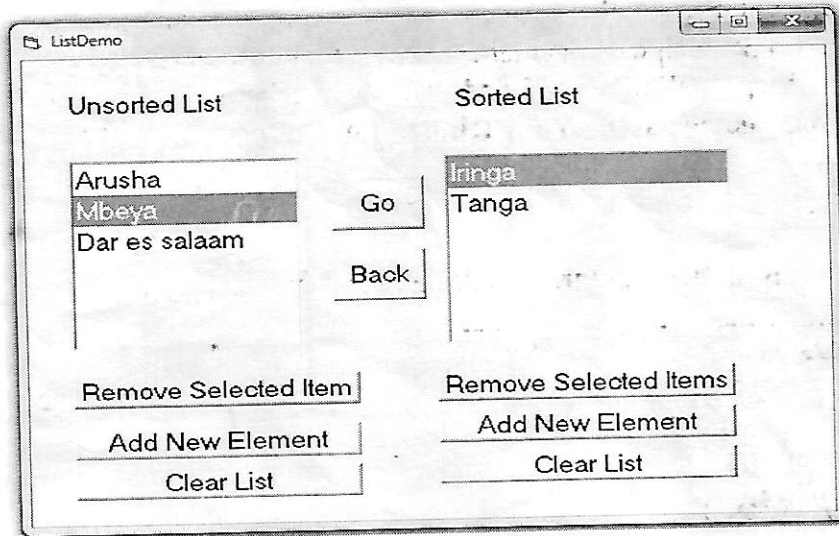
- (ii) Construct Visual Basic codes which will enable a user to calculate monthly payment after entering the loan amount, interest rate and duration. A program should display the amount required to be paid on the text box after clicking command button "Show Payment".

HINT: Use following formula to calculate monthly payment:

Monthly Payment = $\text{Pmt}(\text{InterestRate}, \text{Duration}, \text{LoanAmount}, 0, \text{Due})$

Note: Due is assigned to 0 if the checkbox is checked OK otherwise it is assigned to 1.

- (b) (i) Use Visual Basic program to create the interface as represented below:



- (ii) Create Visual Basic codes which will activate each command in the interface created in part (b) (i) above.

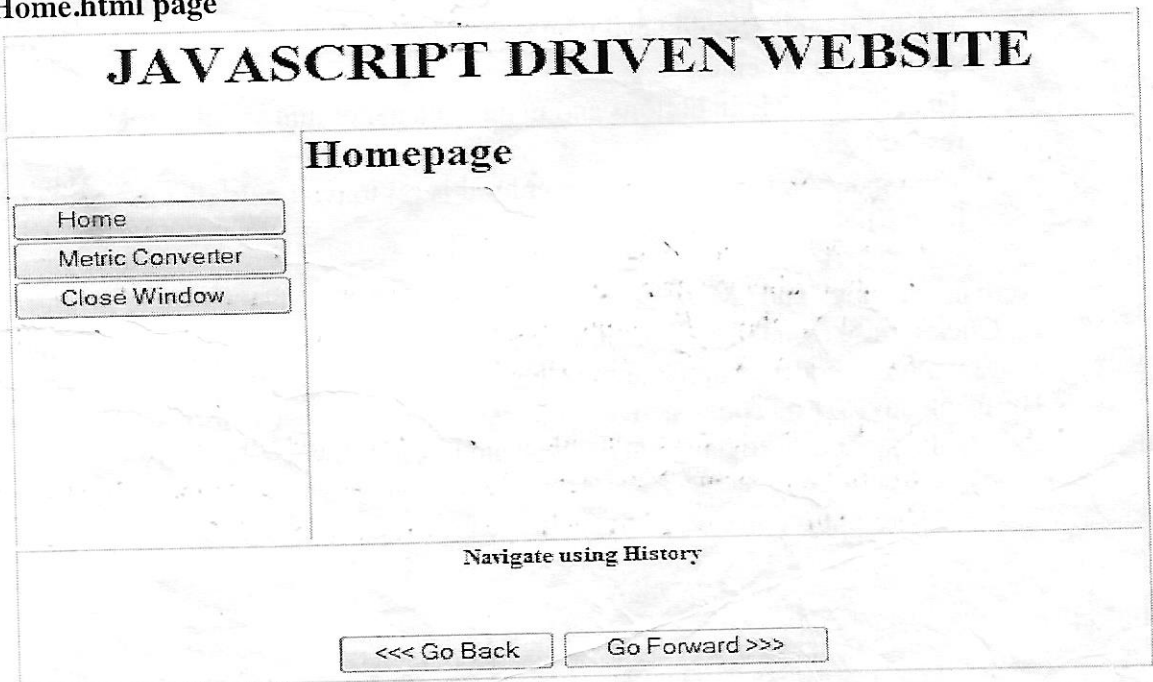
Note:

- Use input box to add new element when a user clicks “Add New Element” command button.

(25 marks)

3. (a) Use basic HTML tags and JavaScript codes to design a website which consists of two webpages namely “Home.html” and “Metric-conveter.html”. The screenshot of the webpages are as follows:

Home.html page



JAVASCRIPT DRIVEN WEBSITE	
Menu <div>Home</div> <div>Metric Converter</div> <div>Close Window</div>	Provide Your Choice for Coverision <i>Choose the type of conversion</i> <div>...select select Length Mass Pressure</div> <div>Output</div> <div>Refresh Converter</div>
Navigate by Using History <div><<< Go Back</div> <div>Go Forward >>></div>	

Pages Descriptions

- The main table should have width=800, height=600, cell padding=2, border=1 and aligned at center.
- The width of Menu buttons and main content column should be 150 and 650 respectively.
- The input box in metric-converter.html is set to read only (the user can only read from it).

- Activate "Home" and "Metric Converter" links in the buttons menu by using JavaScript on Click mouse event. The links must open a linked page on the same window.
- Use JavaScript codes to activate the Close Window button.
- By using JavaScript codes activate the "Go Back" and "Go forward" buttons so that they will enable user to navigate the website through Browser History.

- (e) Use JavaScript codes and dialog boxes to activate the Metric-converter.html page so that it can convert the measurements given in Table1. The output should be displayed in the input box shown on the metric-converter.html page..

Table 1:

Measurement	Converting From/To	
Length	Miles	Kilometers
Mass	Pounds	Kilograms
Pressure	Bars	Atmospheres

Hint:

1 Mile=1.61 Kilometers

1 Kilogram= 2.2 Pounds

1 Atmosphere= 1.0133 Bars

(25 marks)