

**Question 3 (25 marks)**

- a. Briefly explain the significant of using function prototypes in C Programming Language. (2 marks)
- b. Differentiate between the following (4 marks)
  - i. Boiler plates and user functions
  - ii. External storage class and Static storage class
- c. List two drawbacks in using register storage class in C Programming Language (4 marks)
- d. Write a program which takes two parameters from the user. The first parameter will be a string value of variable **name** and the second is an integer value for a variable **choice**. If choice is 1 the program should call a function which will return the name in lower case. If choice is 2 the program should call a function which will return the name in upper case. If choice is 3 the program should call a function which will return the name in reverse order. When the choice is not between 1 and 3 the program should display "*wrong choice*" to the user. (15 marks)

**Question 4 (25 marks)**

- a. With example describe two ways a union can be declared. (4 marks)
- b. Differentiate between the following: (6 marks)
  - i. An array and a union
  - ii. A union and a structure
- c. Write a program which will implement the bank account scenario. Your account program should implement the following functions **createAccount**, **checkBalance**, **deposit**, **withdraw** and **transfer**. The users will operate your program through the menu option 1-5 with each choice pointing to one of the functions above. Note use union to store data in your program (15 marks)

**Question 5 (25 marks)**

- a. Differentiate between the following. (6 marks)
  - i. Text file and Binary file
  - ii. Read mode and write mode
  - iii. Write mode and append mode

Write a code fragment which will open a file named "IS136.txt" and insert a string "This is IS Semester Imekwisha" 15 bytes from the beginning of the file. The code fragment should check if the file exists before opening it. (6 marks)

Write a program which does the following: (13 marks)

- i. Accepts 50 bank customers' records from the keyboard. Each record should contain the attributes; Surname, First Name, Account Number, Principle, Time.
- ii. The program should compute the Interest for each record entered. ( $I = \frac{PRT}{100}$  and  $R = 5$ )
- iii. The program should also write these records into a text file named "Interest.txt".