GREENWOOD HIGH
TERM EXAMINATION – 1
SEPTEMBER 2019
SUBJECT – COMPUTER APPLICATION

Grade 10
Date: 19/09/19

Time: 2 hrs
Max. Mark: 100

Answers to this paper must be written on the paper provided separately
*You will **not** be allowed to write during the first 15 minutes.*
This time is to be spent in reading the question paper
The time given at the head of this paper is the time allowed for writing the answers.

This paper is divided into two Sections
*Attempt **all** questions from **Section A** and any four **questions** from **Section B***
The intended marks for questions or parts of the question are given in brackets [ ]

Section A [40 Marks]
Attempt all questions

Question 1

(a) Name the keyword that is used for allocating memory to an array. [2]
(b) Is substring() method overloaded? Give examples to support your answer. [2]
(c) State conditions under which binary search is applicable. [2]
(d) State the size in byte of the matrix a[3][4] of char type and int type. [2]
(e) Write the evaluated results for the following Java statement: [2]
Math.round(Math.sqrt(Math.abs(-99.1)))

Question 2

Differentiate the following

(a) Single dimensional array & Double Dimensional array [2]
(b) Methods & Constructor [2]
(c) equals() & compareTo() [2]
(d) empty loop and null loop [2]
(e) Autoboxing & Unboxing [2]

Question 3

(a) Identify and name the type of error(syntax, logical, runtime) in each case given below: [2]
i) int a=10;x;y=20;
ii) Math.sqrt(149-625);
(b) Write the output of the following program statement : [2]
System.out.println ("MOTIVATE".compareTo("DEDICATE"));

(c) What is the use of indexOf() method. Give example. [2]
(d) What are jump statements in Java? [2]
(e) Name a string function which removes the blank spaces provided in the prefix and suffix of a string. [2]

Question 4
Write the output of the following program segment : [5]

(a)

```
String str = "Java Programming Is Fun";
String str1 = "Java";
System.out.println(str.startsWith(str.charAt(0)+ "a"));
System.out.println(str.endsWith("T"));
System.out.println(str.substring(str.indexOf("a"),4));
System.out.println(str.substring(str.lastIndexOf("m"),str.length()-1));
System.out.println(4+3+str.charAt(8)+ str1);
```

[5]

(b)

```
int p = 1,q=2;
for (int i = 5; i < 10; i++)
{
  for (int j = 11; j >= 6; j--)
  {
    if (i > j)
    p += i - j;
    else
    q += j + i;
  }
}
System.out.println("Value of p " + p);
System.out.println("Value of q " + q);
```

SECTION B [60 Marks]

Attempt **any 4** questions from this Section. **[4* 15]**

The answers in this Section should consist of the ***Program in either Blue J environment or any program environment with Java as the base.***

Each program should be written using ***Variable descriptions/Mnemonic Codes*** so that the logic of the program is clearly depicted.

Flow Charts and Algorithms ***are not required.***

Question 5 [15]

Write a menu-driven Java program to:

a. Input a string and generate the following pattern. If String is "GREEN"

```
GREEN
GREE
GRE
GR
G
```

b. Generate the following pattern

```
1
10
101
1010
10101
```

For an incorrect choice, appropriate error message should be displayed.

Question 6 [15]

Design a class **Overload** to overload a function display( ) as follows:

(i) **void display(int c,int d)** with two integer arguments to print the multiples of 3 between c and d (both inclusive) .

(ii) **void display(int q)** with one integer argument that displays the series of first q Pell numbers. The Pell numbers are an infinite sequence of integers. The sequence of Pell number starts with 0 and 1, and then each Pell number is the sum of twice the previous Pell number and the Pell number before that:
If n = 10 the series must be
0, 1, 2, 5, 12, 29, 70, 169, 408, 985

Question 7 [15]

Write a program in Java to accept 10 names in a Single Dimensional Array and display all those names whose first alphabet matches with the alphabet given by the user.[Use Streams]

Sample Input:
Suman
Nancy
Sia
Aniketh
.
.
.
Enter your alphabet: S
Sample Output:
Names are
Suman
Sia
.
.

Question 8 [15]

Write a Java program to design a class **Loan** with the following description :

Instance variables/data members:
int age – stores the age of person taking loan
int time – stores the time for which loan is sanctioned
double principal – stores the principal amount sanctioned
double rate - stores the rate of interest
double amount - stores the amount to be paid after given time

Member methods:
A default constructor to initialize the data members.
void getdata(int a,double p, int t) to accept age,principal and time
void calculate() to find the interest and amount based on the following criteria:

Time(no of years for which loan is taken)	Age	Rate of Interest
Upto 5 years	upto 30 years	15%
	More than 30 years	14%
More than 5 years and upto 10 years	Upto 30 years	12%
	More than 30 years	11%
Above 10 years	Upto 30 years	10%
	More than 30 years	9%

[interest=principal*rate*time/100 , amount = principal + interest]
void display() to display the interest and amount in the given format

Principal	Rate	Amount
xxx	xx	xxxxxx

Create an object **customer** of the class to call the above methods.

Question 9 [15]

Write a program in Java to accept a string and display the new string after reversing each character of each word.[Use Streams]

Sample Input: Greenwood High is my school

Sample Output: doowneerG hgiH si ym loohcs

Question 10 [15]

Write a Java program to enter numbers in a double dimensional array with r rows and c columns. Print the sum of first and last row elements of the matrix.[Use Scanner]

Sample Input

Enter no of rows: 4

Enter no of columns: 3

Enter elements of 4x3 matrix:

0

1

2

3

4

5

6

7

8

9

10

11

Sample Output

The sum of first and last row elements of matrix: 33