ST. GREGORIOS HIGH SCHOOL

COMPUTER APPLICATIONS

Std. : X　　Preliminary Exam　　Dt. : 16/01/2019　　Marks : 100　　Time : 2Hrs.

Answer 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 to be spent in reading the question paper. The time given at the head of this paper is time allowed for the writing the answers.

This paper is divided into two sections. You are to answer all questions from section A, and any four questions from section B. The intended marks for questions or parts of questions are given in brackets [].

SECTION A[40 Marks]

Attempt all questions from this section.

Question 1.

Answer the following:

a) How are private members of a class different from public members? [2]

b) Differentiate between searching and sorting. [2]

c) Arrange the operators given below in order of higher precedence to lower precedence. [2]

i. &&　　ii. %　　iii. >=　　iv. ++

d) Write two characteristics of function overloading. [2]

e) Define data abstraction. [2]

Question 2.

a) Convert the following into for loop. [2]

```
int i=10, x=1;
do
{
 i++;
 x++;
 System.out.println(x);
}while(x<=10);
```

b) Arrange the following primitive data types in an ascending order of their size: [2]

(i) char　　(ii) byte　　(iii) double　　(iv) int

c) Write the return type of abs() and round() [2]

d) Give the difference between rint() and round().(two points) [2]

e) int a=5,b=12,c=3,max=0; [2]

```
max = (a>b) ? (a>c) ? a:c : (b>c) ? b : c ;
System.out.println(max);
```

Question 3.

a) Give the output of the following : [2]

i) "CHEER".replace('E', 'I');

ii) "TEAR".compareTo("FEAR");

b) Give the initial (default) value of char and byte data types. [2]

c) Convert the following snippet of the program into if – else if [2]

```
char opn = 'a';
switch(opn)
    {
        case 'a' : System.out.println("OOP");break;
        case 'b': System.out.println("JAVA"); break;
        default : System.out.println("INVALID OPTION");
    }
```

d) Give the output of the following expression: [2]

a+= ++a * ++a / --a % a-- ; when a = 3

e) Give the output of following snippet of the program. How many times does the loop execute? [2]

```
int i;
for(i=10; i>20; i++)
System.out.println(i);
System.out.println(i + 8);
```

f) Consider the following String array and give the output [2]

```
String arr[] = { "BANGALORE", "KOLKATA", "MUMBAI", "UP", "CHENNAI" };
System.out.println(arr[0].length() > arr[1].length() );
System.out.println(arr[2].substring(3,3) );
```

g) Write the output of following program code: [2]

```
char ch;
int x=71;
do
{
 ch = (char)x;
System.out.println(ch + " ");
if(x % 10 == 0)
break;
++x;
}while(x<=100);
```

h) Name any two library packages other than io and util. [2]

I) Difference between formal and actual parameters. [2]

j) Write the function prototype (function definition) of function intchar which takes an integer argument and a character argument and returns a boolean value. [2]

55

SECTION B (60 Marks)

Attempt any four questions from this section.

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

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

Question 4. [15]

Design a **class Railway Ticket** with following description:

Instance variable / data members

String name : to store the name of the customer

String coach : to store the type of coach customer wants

long mobno : to store customer's mobile number

int amt : to store basic amount of ticket

int totalamt : to store the amount to be paid after updating the original amount

Member methods

void accept() : To take input for name, coach, mobile number and amount

void update() : To update the amount as per the coach selected (extra amount to be added in the amount as follows)

Type Of Coaches	Amount
First AC	700
Second AC	500
Third AC	250
Sleeper	None

void display() : To display all the details of a customer such as name, coach, total amount and mobile number.

Write a main method to create an object of the class and call all the above member methods.

Question 5. [15]

Write the programs to display the following pattern (2 separate programs)
(use loop variables only to display the patterns of q.1)

1.

```
1
121
12321
1234321
123454321
```

2. Accept any string and display the following:
example: BLUEJ

```
JEULB
EULB
ULB
LB
B
```


56

Question 6. [15]

Design a class to overload a function area() as follows:

i) double area(double a, double b, double c) with three double arguments, returns the area of scalene triangle using the formula:

Area = $\sqrt{s(s-a)(s-b)(s-c)}$ where s = $\frac{a+b+c}{2}$

ii) double area(int a, int b, int height) with with three integer arguments, returns the area of trapezium using the formula:

Area = $\frac{1}{2}$ height (a+b)

iii) double area(double diagonal1, double diagonal2) with two double arguments. , returns the area of rhombus using the formula:

area = $\frac{1}{2}$(diagonal1 X diagonal2)

Question 7. [15]

A special two-digit number is a number, when the sum of its digits added to the product of its digits, the result is equal to the original two-digits number.

example : 59
sum of digits = 5 + 9 = 14
product of its digits = 5 x 9 = 45
sum of the - sum of digits and product of digits = 14+45 = 59

Write a program to accept a two-digit number. Caculate and output the message "Special 2-digit number" otherwise output the message "Not a Special 2-digit number".

Question 8. [15]

Write a program to store following names in an array n. Arrange them in ascending order.
"NASIR", "AREEB", "OWAIS", "SHABINA", "ALMEIDA", "GRISH", "ANJANI"

EXAMPLE :
INPUT :
GOAT
SHEEP
COW
BULL

OUTPUT
BULL
COW
GOAT
SHEEP

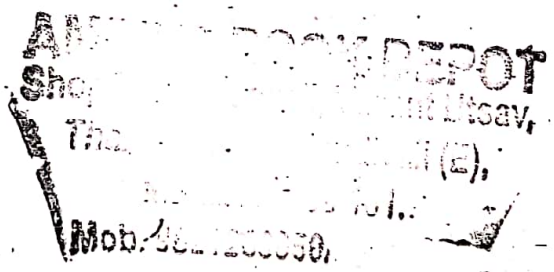
Question 9. [15]

Accept any string, replace all the vowels with the next alphabet in the string.

EXAMPLE

INPUT : NASIR UMER

OTUPUT : NBSJR VMFR



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