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BANGALORE

FIRST PRELIMINARY EXAMINATION 2019-20

STD: X

SUB: COMPUTER APPLICATION

MARKS: 100

TIME: 2 Hrs.

SECTION – A [40 Marks]

Answer all questions

Q I.

1. What is the difference between break and labelled break? [2]
2. What is the difference between an object and a class? [2]
3. What are the two ways of invoking functions? [2]
4. What is a difference between constructor and functions? [2]
5. Mention the types of access specifiers. [2]

Q II.

1. What is the datatype returned by the library functions? [2]
   a. compareTo()
   b. equals()
2. Write a statement in java for $A = P\left(1 + \frac{r}{n}\right)^{nt}$ [2]
3. If a function contains several return statements, how many of them will be executed? Give the reason. [2]
4. Write a statement that displays the value of the second element in the longarray balance. [2]
5. Differentiate between String and StringBuffer classes in Java. [2]

Q III.

1. Predict output of the following expression. [2]
   a. Math.pow(4,0.5)+Math.ceil(4.2)
   b. Math.round(13.6)+Math.floor(4.9)

2. Give the output of the following string functions [2]

a. "MISSISSIPPI".indexOf('S') + "MISSISSIPPI".lastIndexOf('I')

b. "CABLE".compareTo("CADET")

3. If int x[] = {5,7,3,9,6,8}; what are the values of p and q? [2]

a. p = x.length

b. q = x[3]+x[2]*x[4]

4. Given the following programming code: [2]

```
class Test
{
public boolean x(int a, int b)
{
boolean c = true;
while(a>1 && b>1)
{
if(a>b)
a-=b;
else
b-=a;
}
if(a ==1 || b == 1)
c = false;
return c;
}}
```

What will be the output if a=28 and b = 29?

5. Write a java statement for each to perform the following task on a String: [2]

a. Find and display the position of the last space in a string str.

b. Extract the third character of the String str.

6. What are the different types of arrays? [2]

7. What is the value of m after evaluating the following expression? [2]

m-=9%++n+ ++n/2 ; when int m=10 and n=6

8. Convert the following using ternary operator: [2]

```
if(marks>=80)
    System.out.println("Pass");
else
    System.out.println("Fail");
```

9. Rewrite the following loop using **for** loop: [2]

```
int i=10;
while(i>1)
{
   System.out.println(i);
   i--;
}
```

10. What will be the output of the following program segment? [2]

```
String s1 = "good"; String s2 = "manners";
String str1 = s2.substring(5).replace('t','n');
String str2 = s1.concat(str1);
System.out.println(str1); System.out.println(str2);
```

SECTION- B [60 Marks]

*Answer **any 4** questions*

Q IV. Design a class to overload a function Sum( ) as follows: [15]

1. int Sum(int A, int B) – with two integer arguments (A and B) calculate and return sum of all the even numbers in the range of A and B.

   Sample input: A=4 and B=16
   Sample output: sum = 4 + 6 + 8 + 10 + 12 + 14 + 16

2. double Sum(double N) – with one double arguments(N) calculate and return the product of the following series:

   sum = 1.0 x 1.2 x 1.4 x ..... x N

3. int Sum(int N) - with one integer argument (N) calculate and return sum of only odd digits of the number N.

Sample input : N=43961
Sample output : sum = 3 + 9 + 1 = 13
Write the main method to create an object and invoke the above methods.

Q V. Write a menu-driven program to display the pattern as per user's choice: [15]

a.
```
    A
   B A
  C B A
 D C B A
E D C B A
```

b.
```
5 5 5 5 5
 4 4 4 4
  3 3 3
   2 2
    1
```

Q VI. [15]

Write a program to input name and percentage of 20 students of class X in two separate one dimensional arrays. Arrange student's details according to their percentage in the **descending** order using **bubble sort** method. Display name and percentage of first ten toppers of the class.

Q VII. Define a class ElectricBill with the following specifications: [15]

class: ElectricBill
Instance Variables/ data members:
i) String n – to store the name of the customer
ii) int units – to store the number of units consumed
ii) double bill – to store the amount to paid

Member methods:
i) ElectricBill() – Default constructor
ii) void accept() – to accept the name of the customer and number of units consumed
iii)void calculate() – to calculate the bill as per the following tariff :

Number of units — Rate per unit
First 100 units — Rs.2.00
Next 200 units — Rs.3.00

Above 300 units — ₹. 5.00
A surcharge of 2.5% charged if the number of units consumed is above 300 units.

iv) void print() – To print the details as follows :
Name of the customer .....
Number of units consumed .....
Bill amount .....

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

Q VIII. **[15]**

Write a program to input integer elements into an array of size (4x3) and perform following operations using **2D array:**

1. Display largest number from the array.
2. Display smallest number from the array.
3. Display the sum of all the elements of the array.

Q IX. **[15]**

Write a program to accept a string. Convert the string to upper case. Count and output the number of double letter sequences that exist in the string.

Sample input: "SHE WAS FEEDING THE LITTLE RABBIT WITH A CARROT"
Sample output: 4

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