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BANGALORE

SECOND PRELIMINARY EXAMINATION 2019-20

STD: X **MARKS: 100**

SUB: COMPUTER APPLICATION **TIME: Hrs.**

SECTION – A [40 Marks]

Attempt all questions

Q I. **[5×2=10]**

1. Define abstraction.
2. a) int res = 'A';

   What is the value of res?

   b) Name the package that contains wrapper classes.
3. What are the two ways of invoking functions?
4. Differentiate between formal parameter and actual parameter.
5. If int x[]={4,3,7,8,9,10}; what are the values of p and q?

   a. p = x.length

   b. q = x[2]+x[5]*x[1]

[5×2=10]

Q II.

1. State the difference between == operator and equals() method.
2. Give two differences between switch statement and if-else statement.
3. What is a constructor? When is it invoked?
4. What is meant by a package? Name any two Java Application Programming Interface packages.
5. Why an object is called an instance of a class?

[5×2=10]

Q III.

1. Write a Java expression for the following:

   $\sqrt{(3x+x2)} / (a+b)$

2. What is the value of x1 if x=5?

x1=++x – x++ + ~~–x~~ – – x

3. Give the output of the following Math functions:

a. Math.ceil(4.2)

b. Math.abs(-4)

4. State the output of the following program segment is executed:

```
String a = "Smartphone", b = "Graphic Art";
String h = a.substring(2, 5);
String k = b.substring(8).toUpperCase();
system.out.println(h);
        system.out.println(k.equalsIgnoreCase(h));
```

5. Rewrite the following program segment using the if-else statements instead of the ternary operator.

```
String grade = (mark >= 90) ? "A" : (mark >= 80) ? "B" : "C";
```

Q IV. [5×

1. What is the value of y after evaluating the expression given below?

y += ++y + ~~y~~ + ~~y~~; when int y = 8.

2. Write the output for the following :

```
String s = "Today is Test";
system.out.println(s.indexOf('T'));
system.out.println(s.substring(0,7)+ " " + "Holiday");
```

3. Write down java expression for:

T = square root (A2 + B2 + C2)

4. If int y = 10 then find int z = (++y * (y++ + 5));

5. Study the method and answer the given questions:

```
public void sampleMethod()
{ for( int i=0; i<3; i++)
{ for( int j=0; j<2; j++)
{ int number = (int)(Math.random() * 10);
system.out.println(number); } } }
```

a. How many times does the loop execute?

b. What is the range of possible values stored in the variable number?

SECTION – B [60 Marks]

*Attempt **any four** questions from this Section*

Q V. Design a class RailwayTicket with the following description: [15]

Instance variables / Data members:

String name: to store the name of the customer.

String coach: to store the type of coach customer wants to travel.

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.

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 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 the above methods.

Q VI. Write a program to accept a number and check and display whether it is a spy number or not. [15]

(A number is spy if the sum of its digits equals the product of the digits)

Example: consider the amount 1124, sum of the digits = 1 + 1 + 2 + 4 = 8

Products of the digits = 1 x 1 x 2 x 4 =8

Q VII. Special words are those words which starts and ends with the same letter. [15]

Examples:

EXISTENCE

COMIC

WINDOW

Palindrome words are those words which read the same from left to right and vice-versa.

Example:

MALAYALAM

MADAM

LEVEL

ROTATOR

CIVIC

All palindromes are special words, but all special words are not palindromes.

Write a program to accept a word check and print whether the word is a palindrome or only special word.

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

a. void Joystring(String s, char ch1, char ch2) with one string and two character arguments that replaces the character argument ch1 with the character argument ch2 in the given string s and prints the new string.

Example:

Input value of s = "TECHNALAGY"

ch1 = 'A'

ch2 = 'O'

Output: "TECHNOLOGY"

b. void Joystring(String s) with one string argument that prints the position of the first space and the last space of the given String s.

Example:

Input value of = "Cloud computing means Internet based computing"

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c. void Joystring(String s1, String s2) with two string arguments that combines the two strings with a space between them and prints the resultant string.

Example:

Input value of s1 = "COMMON WEALTH"

s2 = "GAMES"

Output: "COMMON WEALTH GAMES"

(use library functions)

Q IX. Write a program to accept the year of graduation from school as an integer value from the user. Using the Binary Search technique on the sorted array of integers given below, output message 'Record exists' if the value input is located in the array. If not, output the message "Record does not exist". [15]

(1982, 1987, 1993, 1996, 1999, 2003, 2006, 2007, 2009, 2010)

Q X. Write a program to accept name and total marks of N number of students in two single subscripts array name[] and totalmarks[]. [15]

Calculate and print:

a. The average of the total marks obtained by N number of students.
[average = (sum of total marks of all the students) / N]

b. Deviation of each student's total marks with the average.
[deviation = total marks of a student – average]

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