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CHRIST NAGAR HR SEC. SCHOOL, TRIVANDRUM

SECOND MODEL EXAMINATION 2022-'23

Std: X (ICSE)

Time : 2 hrs

COMPUTER APPLICATIONS

Marks : 100

Answers to this paper must be written on the paper provided separately

You will not be allowed to write answer for 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 the questions or part of questions are given in brackets []

SECTION A (40 Marks)

Attempt all questions from this Section

Question 1

Choose the correct answer and write the correct option:- [20]

1. _____ is a constant value that can be assigned to a variable.

   a) Keyword   b) Literal

   c) Identifier   d) None of the above.

2. System.out.println(Math.pow(81,½));

   a) 9.0   b) 0.0

   c) 1.0   4) none of the above

3. System.out.println("contemporary".substring(3,8));

   a) ora   b) temporary

   c) tempo   d) ntemp

[P.T.O]

4. Total bits required for a double array having 5 elements

   a) 40 bits

   b) ' 320 bits

   c) 20 bits

   d) 160 bits

5. The process of converting from wrapper to the primitive datatype is called

   a) wrapping

   b) · unboxing

   c) autoboxing

   d) coercion

6. Java Virtual Machine is an

   a) Compiler

   b) Machine code

   c) Byte code

   d) . Interpreter

7. It is a blueprint or prototype of an object

   a) object

   b) . class

   c) variable

   d) declaration

8. It is a type of error that occurs at runtime when the compiler does not respond properly while executing a statement

   a) syntax error

   b) . runtime error

   c) logical error

   d) input error

9. System.out.println(Math.ceil(3.4)+Math.pow(2,3));

   a) 9.0

   b) 10.0

   c) · 12.0

   d) 16.0

10. Give the output of the following code and also mention how many times does the loop execute

```
for( i=5;i>10;i++)
System.out.println(i);
System.out.println(i*4);
```

   a) 20
      1 time

   b) 20
      0 times

   c) 30
      2 times

   d) 40
      2 times

2

11. An array is passed by

a) ·value

b) reference

c) data

d) none of the above

12. A statement indicating the function name,return type along with function arguments is known as

a) Signature

b) Procedural

c) return type

d) ·Prototype

13. char z [ ] = {'a', 'c', 66, 99, '&', '7'};

System.out.println (z[0] + ", " + z[2]);

a) ·a,66

b) a,c

c) a,B

d) 97,66

14. Give the return data type and argument data type isWhitespace ( )

a) String, String

b). boolean,String

c) boolean, char

d) char, boolean

15. The String class is available under the _____ package of java class Library

a) java.string

b) java.lang

c) java.io

d) java.awt

16. What will the following code output ?

String s="malayalam";

System.out.print(s.indexOf('m')+" ");

System.out.println(s.lastIndexOf('m'));

a) 1 9

b) 8 8

c)· 0 8

d) 1 8

17 What is the value of m after evaluating the following expression:

m· = 9%+ +n + ++n/2; when int m=10,n=6

a) 6

b) 4

c) 2

d) 9

3

18.   A keyword, to use the classes defined in a package.

a) void

b) import

c) public

d) . static

19.   Name the primitive data type in Java that is a 64-bit integer and is used when you need a range of values wider than those provided by int.

a) int

b) float

d) . long

d) . double

20.   Which unit of a class gets invoked when an object for a class is created?

a) Member method

b) . Constructor

c) Instance method

d) Static method

Question 2

1)   Write java expression for: [2]

$$\left| x^2 + e^{2x} \right|$$

2)   Name the keyword: [2]

a) That sends the control back to the method call.

b) That is used to declare a class variable

3)   Write the function prototype of a function named details, which will accept two strings and one int variable, namely a, b, c, respectively, and will return either 0 or 1.   [2]

4)   Convert the following if-else-if construct to switch case   [2]

if(var==1)

System.out.println("Remember");

else if(var==2)

System.out.println("Rejoice");

else if(var==3)

System.out.println("Reachout");

else

System.out.println("Diamond Jubilee");

4

5) public void sampleMethod()

[2]

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

i) How many times does the loop execute ?

ii) What is the range of possible values stored in the variable number ?

Question 3

1) What will be the output of the following code?

[2]

```
int a=10,b=16,c;
c= a>b? ++a : b--;
System.out.println(a+ " "+b+ " " +c);
System.out.println(a%2==0);
```

2) Predict the Output:-

[2]

```
String a="Green", b="Greenery";
System.out.println (a.compareTo(b));
System.out.println (Math.pow (b.indexOf('e'), 3));
```

3) Define the term Bytecode?

[2]

4) Differentiate between primitive and composite data types.

[2]

5) What are literals in java? Give example of any two types of literals. [2]

[P.T.O]

SECTION B (60 Marks)

Attempt any four questions from this section.

The answers in this section should consist of the programs in BlueJ environment or any program environment with Java as the base. Each program should be written using variable description/Mnemonic codes such that the logic of the program is clearly depicted. Flow-charts and Algorithms are not required.

Question 4 [15]

Design a class Cyber having the following description:-

Data Members/Instance Variables:

String n – stores the name

int hours – Stores the number of hours

int charges – charges to be paid

Member Methods:-

i) Cyber ( ) – initialize the data members with the default values.

ii) void accept ( ) – Accept details for n and hours using Scanner class.

iii) void calculate ( ) – compute the browsing charges as per the criteria given below:-

No. of hours	Charges/hour
First 1 hour	Rs.20 per hour
Each additional hour	Rs.10 per hour

iv) void display ( ) – print the details (n, hours and charges)

v) Write a main () method to create an object and call the above member methods.

[15]

Question 5

Declare a single dimensional array of size 28 to store daily temperatures for the month of February. Write a program to find:

1. The hottest day of the month
2. The coldest day of the month
3. The average temperature of the month

[15]

Question 6

Write a program to accept a string and print the string replacing the vowels with '*', consonants with '@' and other characters with '#'

Ex : BEAUTIFUL@123

OUTPUT : @***@*@*@###

Question 7

Using switch case write a menu driven program to:

[15]

a)   A tech number has an even number of digits. If the number is split in two equal halves, then the square of sum of these halves is equal to the number itself. Write a program to generate and print all four digit tech numbers.

Example :

Consider the number 3025

Square of sum of the halves of $3025 = (30+25)^2$

$(55)^2 = 3025$ is a tech number.

b)   To display all prime palindrome numbers between 10 and 1000

[Hint: A number which is prime as well as palindrome is said to be 'Prime Palindrome number']

For example:11,101,131,151...........

QUESTION 8

[15]

Define a class to accept 10 characters into an array from keyboard and arrange them in ascending order using bubble sort technique. Print the original array and sorted array.

Question 9
[15]

Define a class to search for an integer from the list of integers given below and display the message "Search Successful" if it is found in the array, otherwise display the message "Search Unsuccessful" using Binary Search.

5, 2, 6, 8, 13, 16, 18, 29, 45, 67, 78, 97