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CHRIST NAGAR HR SEC. SCHOOL, TRIVANDRUM

FIRST TERMINAL EXAMINATION 2022-'23

Std: X (ICSE)

Time : 2 hrs

Marks : 100

COMPUTER APPLICATIONS

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 questions are given in brackets[].

SECTION A (40 Marks)

Attempt all questions

Question 1

Choose the correct answer and write the correct option

i) The process by which a class acquires the properties of another class is called

a) Abstraction
b) Inheritance
c) Polymorphism
d) Encapsulation

ii) Java virtual machine is

a) Compiler
b) Bytecode
c) Interpreter
d) Machine code

iii) Which of the following is not a java reserved word

a) public
b) total
c) void
d) break

iv) The package used for Mathematical functions in java

a) java.io
b) java.util
c) java.net
d) java.lang

v) Division by a variable that contains a value zero is

a) Runtime error
b) Logical error
c) Syntax error
d) input error

[P.T.O]

vi) for loop is also called as

a) condition loop
b) Entry controlled loop
c) infinite loop
d) Exit controlled loop

vii) Math.pow(121,½) +Math.sqrt(81)

a) 10
b) 20.0
c) 10.0
d) 9.0

viii) The number of bytes occupied by the constant 'a'

a) Four bytes
b) Eight bytes
c) two bytes
d) one byte

ix) The Operator which works on the Principle 'Change before Action'

a) Logical operator
b) Binary operator
c) Postfix operator
d) Prefix Operator

x) Choose the output of?

```
char res= 'F';
int n= res;
n=n+5;
System.out.println(n+" "+res);
```

a) 70 F
b) 75 F
c) 76 G
d) 75 E

xi) Operators with higher precedence are evaluated before operators with relatively lower precedence. Arrange the operators given below in order of higher precedence to lower precedence.

(i) && (ii) % (iii) >= (iv) ++

1. (iv), (i), (iii), (ii)
2. (iv), (iii), (ii), (i)
3. (iv), (ii), (iii), (i)
4. (i), (ii), (iii), (iv)

xii) Method that accepts a string without any space

a) nextLine()
b) nextInt()
c) next()
d) None of the above

xiii)

```
switch (x)
{
case 'a' : System.out.println("Discipline");
case 'b' : System.out.println ("Dedication"); break;
```

```
case 'c' : System.out.println("Commitment");
default : System.out.println("Success");
}
```

Write the output when x='A'

1. Discipline
2. Dedication
3. Success
4. None of the above

xiv) Analyze the following program segment and determine how many times does the loop will be executed and what will be the output of the program segment

```
int k=1,i=2;
while(++i<6)
k*=i;
System.out.println(k);
```

a) The loop executes 5 times and output is 60
b) The loop executes 4 times and output is 60
c) The loop executes 3 times and output is 60
d) None of the above

xv) The parameters appearing in function call statement

a) actual parameters
b) formal parameters
c) call parameters
d) all the above

xvi) int r ='d', res;
res = (int)r; What is the value of res?

a) d
b) 68
c) 100
d) 99

xvii) What are the two decision control statements in java?

1. if and switch
2. for and while
3. ternary and logical
4. All the above

xviii) The default value of char data type is .....

a) '\u0020'
b) '\u00ff'
c) " "
d) '\u0000'

xix) The first line of method definition that tells the compiler about the method name, type of value returned by the method and the number and type of arguments passed.

a) Function definition
b) Function prototype
c) Function signature
d) Function arguments

xx) It is the process of converting one primitive data type to another primitive data type.

1. Wrapper class
2. Type Conversion
3. Type casting
4. 2 and 3

Question 2

1) Write java expression for: [2]

a) $|x^2+y^3|$

b) $\sqrt[3]{4x^2} + y^3$

2) Evaluate the following expression: [2]

x+= a+ + + - - b + + +a + b - -;

where a =10,b=5, x=10;

3) Write the output: [4]

a) System.out.println("A picture is worth \t \"A thousand words.\" ");

b) System.out.println(Math.max(Math.ceil(14.5), -15.5)));

c) System.out.println(Math.cbrt(Math.abs(-125)));

d) System.out.println("nine:" + 5 + 4);

e) Give the output of the snippet: [2]

```
int a = 3;
while (a<=10)
{
a++;
if(a== 5)
continue;
System.out.println(a);
}
```

4) Rewrite the following program segment using for loop: [2]

```
int n = 152, s = 0;
while (n != 0)
{
int d = n % 10;
s = s + d;
n = n / 10;
}
```

n	s	d
152	0	2
15	0+2=2	5
1	2+5=7	1
0	7+1=8	

5) Rewrite the following using ternary [2]

```
if(n!=0)
{
if(n>0)
k='p';
else
k='n';
}
else
k='z';
```

6) Rewrite using nested if [2]

```
int m,n;
if ( m>=80&&n>=90)
System.out.println("Grade A");
else  if( m>=80&&n<90)
System.out.println("Grade B");
else
System.out.println("Grade C");
```

7) Differentiate between (give examples also) [4]

a) break and continue.

b) Entry controlled loop and Exit controlled loop.

Section B

(Attempt any four questions from this section)

(Each program should be written using variable descriptions/ Mnemonic codes so that the logic of the program is clearly depicted)

Question 3

a) Write a program to accept a number and check whether it is a CORONA number or not. [15]

CORONA NUMBER: A number whose all digits are odd.

Example: 3975 – all digits are odd

b) An Abundant number is a number for which the sum of its factors (excluding the number) is greater than the number itself. Write a program to input a number, check and print whether it is an Abundant number or not.

Example:

Consider the number 12.

Factors of 12 = 1, 2, 3, 4, 6 Sum of factors = 1 + 2 + 3 + 4 + 6 = 16

16 is greater than 12 so 12 is an Abundant number

Question 4

Write a menu driven program to convert from one unit to another as per the User's choice **(Use Switch Case)**

Choice No	Conversion
1	KB to Bytes
2	Meter to Inch
3	Gallon to Liter

Hint:1 KB=1024 Bytes

1 Meter = 39.34 inch

1Gallon = 20/9 Liters

Question 5

Write two separate programs to generate the following patterns using iteration(nested loop) statements: [15]

a)

```
*
* #
* # *
* # * #
* # * # *
```

b)

```
7
7 5
7 5 3
7 5 3 1
```

Question 6

An air-conditioned bus charges fare from the passengers based on the distance travelled as per the tariff given below: [15]

Distance Traveled	**Fare**
Up to 10 km	Fixed charge ₹80
for the next 10 km	₹6/km
for the next 10 km	₹ 5/km
above that	₹4/km

Design a program to input distance travelled by the passenger. Calculate and display the fare to be paid.

Question 7

Write a program to print the sum of the following series. Accept the values of x and n through the keyboard. [15]

a) $\frac{x}{2!} + \frac{x^2}{5!} + \frac{x^3}{8!} + \frac{x^4}{11!} + \ldots\ldots$upto n terms

b) To display the following series:(Accept the value of p as argument)
0, 7, 26, 63 upto p terms.

Question 8 (15)

Using a **switch statement**, write a menu driven program to:

(a) Generate and display the first 10 terms of the Fibonacci series

0, 1, 1, 2, 3, 5 .....

[The first two Fibonacci numbers are 0 and 1, and each subsequent number is the sum of the previous two.]

(b) To check and display whether a number entered by the user is a composite number or not (A number is said to be composite, if it has more than 2 factors)

Example : 4, 6, 8, 9