V I B G Y O R H I G H

First Preliminary Examination

AY 2021-2022

Computer Applications

Grade: X **Max. Marks : 50**

Date : 28/09/2021 **Time Allowed: 1 hour**

INSTRUCTIONS:

Time allowed: One hour (inclusive of reading time)

ALL QUESTIONS ARE COMPULSORY

The marks intended for questions are given in brackets [ ].

Section A (30 Marks)

Question 1 ***Choose the correct answer*** **[5X1]**

(a) Which of these cannot be used for a variable name in Java.

1. identifier
2. keyword
3. identifier and keyword
4. none of the above

(b) Identify the literals listed below :

(i)0.5

(ii)'A'

(iii)false

(iv)"a"

1. (i) Integer literal (ii)String literal (iii)bool literal (iv)char literal
2. (i) Real literal (ii)char literal (iii)String literal (iv)Character literal
3. (i) Real literal (ii)character literal (iii) true/false literal (iv)String literal
4. (i) Real literal (ii)character literal (iii)Boolean literal (iv)String literal

(c) Give the prototype of a function check which receives a character ch and an integer n and returns true or false.

1. false check(char ch, int n)
2. true check(char ch, int n)
3. boolean check (char ch, int n)
4. char ch(boolean check, int n)

(d) 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)

(e) How is the parameterized constructor called or invoked?

1. Constructor is invoked with the help of a dot operator.
2. Constructor is invoked automatically at the time of object creation.
3. Constructor is invoked with the initial values assigned to the variables.
4. Constructor is invoked automatically at the time of object creation by passing actual values to arguments of the constructor.

Question 2 ***Fill in the blanks with the correct option.*** **[5X1]**

(a) The ability of a method or an object to acquire multiple forms is called _____.

1. Abstraction
2. Encapsulation
3. Inheritance
4. Polymorphism

(b) _____ is an inbuilt/primitive data type.

1. String
2. class
3. long

4. object

(c) _____ are the methods in java that can be called without creating an object of the class.

1. Instance method
2. Static method
3. Local method
4. None of the above

(d) _____ is the method name and the number and type of arguments in the function prototype.

1. Arguments
2. Access specifiers
3. Method prototype
4. Method signature

(e) An object belonging to a particular class is known as an _____ of the class.

1. Entity
2. Object
3. Array
4. Instance

Question 3 ***Name the following*** **[5X1]**

(a) Name the two ways of calling a function.

1. Call by value and Call by reference
2. Inbuilt and user defined
3. Formal call and Actual call

(b) (i) Name the keyword to use a package in java.

(ii) Name the operator for accessing class members.

1. (i) Scanner (ii) ternary
2. (i) import (ii) dot
3. (i) next() (ii) %

(c) Name the size in bits of the following data types?

(i) short

(ii) char

1. (i) 16 bits (ii) 16 bits

2. (i) 16 bits (ii) 32 bits

3. (i) 2 bytes (ii) 4 bytes

(d) Name the types of casting shown by the following example:

(i) double x =15.34;

int y= (int) x;

(ii) int x=12;

long y=x;

1. (i) Explicit (ii) Implicit

2. (i) Explicit (ii) Explicit

3. (i) Implicit (ii) Explicit

(e) Name the keyword that:

(i) causes termination of the loop and the program control goes to the next statement following the loop.

(ii) causes the control to transfer back to the method call.

1.(i) break (ii) continue

2.(i) break (ii)return

3.(i) continue (ii)break

Question 4 ***State True Or False*** **[5X1]**

(a) Default value of int is 0.0f and that of float is 0

1. True

2. False

(b) The class is composed of primitive data types so it is known as composite data type

1. True

2. False

(c) The while loop is known as entry controlled loop and the do…while loop

is known as exit controlled loop.

1. True
2. False

(d) The nextLine() finds and returns the next complete token from this scanner as a String without any space and the next() reads or inputs a string or line of text with space and other characters.

1. True
2. False

(e) Static variables value is separate for each object of the class whereas Instance variables value is shared across all objects of the class.

1. True
2. False

Question 5 ***Choose the odd one*** **[5X1]**

(a)
1. byte
2. short
3. int
4. double

(b)
1. >
2. <=
3. ||
4. <=

(c)
1. public
2. protected
3. private
4. distributed

(d)
1. Source code
2. Machine code/Object code
3. Compiler
4. Byte code

(e)
1. Object oriented

2. Platform dependent

3. Portable

4. Secure

Question 6 ***Give the output of the following*** **[5X1]**

(a) Evaluate the value of n if the value of p=5, q=19;

```
int n =(q-p)>(p-q)?(q-p):(p-q);
```

1. 5
2. 14
3. 19
4. -14

(b) What will be the result stored in x after evaluating the following expression:

```
int x=4;
x+=(x++)+(++x)+x;
```

4+=4+6+6=> 4+=16=>20

1. 20
2. 30
3. 25
4. 21

(c) State the values for x and y

```
int c=900, n=2000;
int x=0,  y=0;
x= n+(c>2550? 1350:1500);
y=n+c>2550?1350:1500;
System.out.println("x="+x);
System.out.println("y="+y);
```

x=2000+1500=>3500

2000+900 >2550

1. x=3500 y=1500
2. x=1350 y=1500
3. x=3350 y=1500
4. x=3500 y=1350

(d) Write the final value of p

```
int m, p;
for (m=7, p=1;m<=10;m++)
{
if(m%2 ==0)
p*=m;
}
System.out.println(p);
```

1*=8=>8
8*=10=>80

1. 80
2. 5040
3. 56
4. 1

(e) Give the output of the following code:

```
int i;
for(i = 5; i >= 1; i--)
{
    if(i % 2 == 1)
    {
      continue;
    }
   System.out.print(i + " ");
}
```

5✗ 3✗ 1✗
4✓ 2✓

1. 4 2
2. 5
3. 5 3 1
4. 5 4 3 2 1

Section B(20 Marks)

Question 7 **Given below is a class with the following specifications:** **[6X1]**

Design a class to overload a function series() as follows.

(i) double series(double n) with one double argument and returns the sum of the series

$$sum=\frac{1}{1}+\frac{1}{2}+\frac{1}{3}+ ....+\frac{1}{n}$$

(ii) double series(double a, double n) with two double arguments and returns the sum of the series

$$sum=\frac{1}{a^1}+\frac{2}{a^2}+\frac{3}{a^3}+ ...nterms$$

Fill in the blanks of the given program with appropriate java statements

```
class overload
{
        public double series(double n)
   {
        double sum=0.0,i,f;
        for(i=1.0;(a)_________;i++)
        {
                (b)_________
                sum+=f;
        }
        return sum;
   }
        public double series(double a, double n)
   {
        double sum=0.0,i,f,num, deno;
        for(i=1.0;i<=n;i++)
        {
                num=i;
                deno=(c)_________
```

```
                f=num/deno;
                sum=(d)_________
            }
            return (e)_________
        }
            public  void main()
            {
                System.out.println("Sum of series 1 = "+ series(5.0));
                System.out.println();
                System.out.println("Sum of series 2 = "+ (f)___________);
            }
    }
```

(a) 1. i<=a
2. i<=n
3. i<=sum

(b) 1. f=1/i;
2. f=i/1;
3. f=n/1;

(c) 1. Math.pow(a,i);
2. Math.pow(a,n);
3. Math.pow(1,a);

(d) 1. sum+f;
2. sum+a;
3. sum+n;

(e) 1. a;
2. n;
3. sum;

(f) 1. series(2.0)
2. series(2.0, a)
3. series(2.0,5.0)

Question 8 The following program is based on the specification given below. Fill in the blanks with appropriate java statements: **[6X1]**

Define a class called mobike with the following description:

Instance variables/data members:

int bno – to store the bike's number

int phno – to store the phone number of the customer

String name – to store the name of the customer

int days – to store the number of days the bike is taken on rent

int charge – to calculate and store the rental charge

Member methods:

void input( ) – to input and store the detail of the customer.

void compute( ) – to compute the rental charge

The rent for a mobike is charged on the following basis.

First five days - Rs 500 per day;

Next five days - Rs 400 per day

Rest of the days - Rs 200 per day

void display ( ) – to display the details in the following format:

Bike No. PhoneNo. No. of days Charge

Fill in the blanks of the given program with appropriate java statements

```
import java.util.Scanner;
public class mobike
{
   int bno;
   int phno;
   (a)_____ name;
   int days;
   int charge;
   public void input()
   {
```

```
    Scanner kb = new (b)_____________
    System.out.print("Enter bike number: ");
    bno = kb.nextInt();
    System.out.print("Enter phone number: ");
    phno = kb.nextInt();
    System.out.print("Enter your name: ");
    name = kb.next();
    System.out.print("Enter number of days: ");
    days = (c)___________
  }
    public void compute()
  {
    if (days <= 5)
    {
         (d)_____________
    }
    else if (days>5&&days <= 10)
    {
     charge = 5 * 500 + (days - 5) * 400;
    }
    else
    {
    charge = (e)_____________
    }
  }
  public void display()
  {
   System.out.println("Bike No. \t Phone No. \t No. of Days \t Charge");
   System.out.println(bno + (f)__________+ "\t" + charge);
  }
}
```

(a) 1. char

2. String

3. int

(b) 1. Scanner(sc);

2. Scanner(System.in);

3. scanner(readLine());

(c) 1. sc.nextInt();

2. kb.nextInt();

3. sc.nextDouble();

(d) 1. charge = 200 * days;

2. charge = 400 * days;

3. charge = 500 * days;

(e) 1. days* 200;

2. 5 * 500 + 5 * 400 + (days - 10) * 200;

3. 5 * 500 + (days - 10) * 200;

(f) 1. \t phno \t days

2. "\t" + Phone No. + "\t" + No. of Days

3. "\t" + phno + "\t" + days

Question 9 Following is a menu driven program to accept a number from the user and check whether it is a Palindrome or a Perfect number. Fill in the missing Java statements. **[4X1]**

(a) Palindrome number – (a number is a Palindrome which when read in reverse order is same as read in the right order.) eg: 11, 101, 151 etc.

(b) Perfect number – (a number is called Perfect if it is equal to the sum of its factors other than the number itself.) eg: 6=1+2+3

```
import java.util.*;
class Check
{
```

```
public static void main()
{
    Scanner sc=new Scanner(System.in);
    System.out.println("\t\t Menu\t\t");
    System.out.println("choose 1 for palindrome");
    System.out.println("choose 2 for perfect no");
    int y=sc.nextInt();
    switch(y)
    {
        case 1:
        System.out.println("enter a number :");
        int n=sc.nextInt();
        int x=n;
        int d, s=0;
        while(n!=0)
        {
            d=n%10;
            n=n/10;
            s=(a)__________;
        }
        if((b)_________)
        System.out.println(x+"is a palindrome number");
        else
        System.out.println(x+"is not a palindrome number");
        break;
        case 2:
        System.out.println("enter a number :");
        n=sc.nextInt();
        int sum1=0;
        for(int i=1;(c)_________; i++)
        {
```

```
    if((d))_____________
    sum1=sum1+i;
  }
  if(sum1==n)
  System.out.println(n+"is a perfect number");
  else
  System.out.println(n+"is not a perfect number");
  break;
  default:
  System.out.println("Wrong input");
}}}
```

(a) 1. (s*d)+10;
2. (s*10)+d;
3. (d*10)+s;

(b) 1. s==x
2. s==d
3. s==n

(c) 1. i=n
2. i<=n
3. i<n

(d) 1.sum1%i==0
2.n-1%i==0
3. n%i==0

Question 10 Read the paragraph given below and answer the questions given below: **[4X1]**

Case study:

The java.lang.Math contains a set of basic math functions for obtaining the absolute value, highest and lowest of two values, rounding of values, random values etc. Some of the basic math functions of the Java Math class are as follows:

The Math.abs() function returns the absolute value of the parameter passed to it. The absolute value is the positive value of the parameter.

The Math.ceil() function rounds a floating point value up to the nearest integer value. The rounded value is returned as a double.

The Math.round() method rounds a float or double to the nearest integer using normal math round rules (either up or down).

The Math.pow() function takes two parameters. The method

returns the value of the first parameter raised to the power of the second parameter.

(a) Math class belongs to which of the following packages:
1. lang
2. util
3. io

(b) System.out.println(Math.pow(Math.ceil(2.2),5));
Select the correct output from the following:
1. 243.0
2. 32.0
3. 6.0

(c) double a= -2.5;
double b=(Math.abs(Math.round(a)));
System.out.println(b);
Select the correct output from the following:
1. 3.0
2. 2.0
3. 3

-2.0
2.0

(d) double x=5.6667;
System.out.println(Math.pow(Math.round(x),2));
Select the correct output from the following:
1. 36.0
2. 25.0
3. 6.0

*****