ICSE SEMESTER 1 MODEL EXAMINATION 2021_2022
COMPUTER APPLICATIONS

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*Max Marks: 50*
*Time allowed: 1 ¼ hour (inclusive of reading time)*
**ALL QUESTIONS ARE COMPULSORY**
The marks intended for questions are given in brackets [ ].

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**Select the correct option for each of the following questions**

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. **SECTION A (30 Marks)**

**Question 1**

**Choose the correct answer** [5×1=5]

(1) Arrange the operators given below in order of lower precedence to higher precedence:
i) && ii) -- iii) % iv) ( )
a) (iv), (i),(iii), (ii) b) (iii), (i),(ii), (iv)
c) (i), (iii),(ii), (iv) d) (iv), (ii),(iii), (i)

(2) Which keyword is used to represent the currently calling object?
(a) new (b) this (c) return (d) all of these

(3) Exit controlled loop is----------?
(a) do while (b) while (c) for (d) if else

(4) What is the final value stored in variable x ?
double a =-15.7; double x = Math.abs(Math.ceil(a));
(a) 16.0 (b)15.0 (c) 16 (d) 15

(5) Name the type of error in the statement given below:
int a;b;c;
(a) Syntax (b) Runtime (c) Logical (d) None of the above

**Question 2**

Fill in the blanks with the correct option [5×1=5]

(6) ---------- is an act representing essential features without including background details.
(a) Inheritance (b) Abstraction
(c) Encapsulation (d) Polymorphism

(7) The number of bytes occupied by **double** data type is _____byte/s
(a) 4 (b) 8 (c) 2 (d) None

(8) Which of the following is not a Java reserved word(keyword)?
(a) private (b) void (c)break (d) total

(9) Name the package that contains the Scanner class
(a) java.util (b) java.io (c) java.lang (d) java.awt

(10) Method that accepts a string including space is _____
(a) next() (b) nextInt() (c) nextLine() (d) None of the above

**Question 3**

**Name the following** [5×1=5]

(11)The wrapper class to which the method parseFloat() belongs to
(a) Float (b) double (c) float (d)ParseFloat

(12) Write the equivalent Java statements for the following expressions

$$\frac{\sqrt{b^2 - 4ac}}{2a}$$

a) math.sqrt((b*b)-(4*a*c))/2*a; b) Math.sqrt((b*b)-(4*a*c))/(2*a);
c) Math.sqrt(b*b - 4*a*c/2*a); d) Math.Sqrt((b*b)-(4*a*c))/2*a;

(13) A constructor without any argument is known as
(a) Constructor (b) Parameterized constructor
(c) Function (d) Default constructor

(14) The prototype of a function Show( ) which receives a float value ***n*** and an integer ***m*** *and* returns ***true*** or ***false***
(a) void Show(float n,int m) (b)boolean Show(char n,float m)
(c) boolean Show(float n,int m) (d) void show(int m,float n)

(15) Parameters used in the function prototype are called
(a) forward parameter (b) actual parameter
(c) formal parameter (d)none of the above

**Question 4**

**State True Or False** [5×1=5]

(16) char ch=(char)120; Type of casting is Implicit type casting.
(a) True (b) False

(17) !(4>3&&7>8 )
(a) true (b) false

(18) The access specifier that gives the most accessibility is public
(a) false (b) true

(19) The break statement mayn't be used in a switch statement.
(a) True (b) False

(20) The statement p=-5 means p=p-5.
(a) False (b) True

**Question 5**
**Choose the odd one** **[5×1=5]**

(21) (a) Polymorphism (b) Inheritance (c)Procedure (d)Encapsulation

(22) (a) || (b) != (c) <= (d) >

(23) (a)The constructor is automatically called while creating an object
(b) The constructor is always public
(c) A constructor is overloaded automatically
(d) The constructor is defined with not the same name as class name.

(24) (a) float (b) long (c) boolean (d) Class

(25) (a) //comment (b)*/comment (c)/**comment*/ (d)/*comment*/

**Question 6**
**Give the output of the following** **[5×1=5]**
(26)y + =++y + y-- + --y; when int y=8
(a)32 (b) 31 (c) 25 (d) 33

(27) If a user wants to execute a loop 10 times, which of the following statement will be used.
(a) for(i=6;i<=26;i=i+2)
(b) for(i=3;i<=30;i=i+3)
(c) for(i=0;i<=10;i++)

(28) String x = (rating >=5) ? "Super Hit" : "Flop"; when a =6
(a) Flop (b)Super Hit (c)SuperHitFlop (d)none

(29) switch ( x )

```
{
        case 'a' : System.out.println("Water");
        case 'b' : System.out.println ("Boiling Water");
        break;
        case 'c' : System.out.println("Water Vapour");
        default : System.out.println("Not Water");
         }
        when x='B'
```

(a) Bioling Water (b) Water (c) Not Water (d) Water Vapour

(30)

```
int x=10,y=200;
    while(x<=y)
    {
        y=y/x;
    }
        System.out.println(y);
```

How many time the loop is executed and what is the output?

(a) Loop is executed 2 times and the output is 2
(b) Loop is executed 3 times and the output is 2
(c) Loop is executed 2 times and the output is 20
(d) Loop is executed 1time and the output is 20

## SECTION B (20 Marks)

**Question 7** **[6x1=6]**

Given below is a class with the following specifications:

(i) void series(int n): to display the sum of the series given below:
1 +5 +9 +…… … +n terms

(ii) double series(int a,int x): to display the sum of the series given below:
$1/a^2 + 3/a^6 + 5/a^{10}$ + …….. + x terms

```
class Overload
    {
        double  sum = (31)……;
        public void series((32)……..)
        {
            int b=1;
```

```
                    for(int i = 1; i <= n; i++)
                    {
                          sum=sum+b;
                         b=(33)……..;
                    }
                          System.out.println("Sum of series is " + sum);
  }

public double  (34)……..(int a,int x)
{
   int c=1,d=2;
   for(int i = 1; i<=x; i++)
   {
      sum=sum+( double)c/( 35)…….;
     c=c+2;
    d=d+4;
  }
      (36)…….
   }
}
```

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

| | | | |
|---|---|---|---|
| (31) | (a) 1 | (b) 2 | (c) 0.0 |
| (32) | (a) int a | (b) int n | (c) int a |
| (33) | (a) b+4 | (b) b+3 | (c) b+2 |
| (34) | (a) Series | (b) Overload | (c) series |
| (35) | (a) Math.pow(a,d) | (b) math.pow(a,c) | (c) Math.sqrt(a,d) |
| (36) | (a) Return sum; | (b) return sum; | (c) System.out.println(sum) |

**Question 8:** **[6x1=6]**

The following program is based on the specification given below. Fill in the blanks with appropriate java statements.

class: ElectricBill

| Instance Variable/ data member: | |
|---|---|
| String n | to store the name of the customer |
| int units | to store the number of units consumed |
| double bill | to store the amount to paid |

Member methods:

void accept() – to accept the name of the customer and number of units consumed

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 | Rs.5.00 |

A surcharge of 2.5% charged if the number of units consumed is above 300 units.

void print() – To print the details as follows :

Name of the customer ……

Number of units consumed ……

Bill amount …….

void main(): to create an object of the class and call the above member methods.

```
import java.util.Scanner;
class (37)_____
{
  String n;
  int units;
  double bill;

      public void accept()
      {
            Scanner sc = new Scanner((38)_____);
            System.out.print("Please Enter name: ");
            n = (39)_____;
            System.out.print("Please Enter units: ");
             units = sc.nextInt();
      }
      public void calculate()
      {
            if (units <= 100)
            {
```

```
            bill = units * 2;
        }
        else if (units <= 300)
        {
        bill = 100 * 2 + ((40)_____) * 3;
        }
        else
        {
            bill = 100 * 2 + 200 * 3 + (units - 300) * 5;
            double surcharge =(41)_____;
             bill = bill + surcharge;
        }
        }
    public void print()
    {
        System.out.println("Name of the customer is" + n);
        System.out.println("Number of units consumed is " + units);
        System.out.println("Bill amount is " + bill);
    }
    public static void main()
    {
        ElectricBill obj = new ElectricBill();
        obj.accept();
        (42)_____;
        obj.print();
    }
    }
```

| | | | |
|---|---|---|---|
| (37) | (a) Class | (b) electric bill | (c) ElectricBill |
| (38) | (a) system.in | (b) System.in | (c) Scanner |
| (39) | (a) sc.nextline() | (b) sc.nextLine() | (c) Sc. NextInt() |
| (40) | (a) units+100 | (b) units –100 | (c) unit |
| (41) | (a) bill * 3.5 / 100 | (b) bill*4.5/100 | (c) bill * 2.5 / 100 |
| (42) | (a) obj.calculate() | (b) calculate.obj() | (c) obj.ElectricBill() |

**Question 8** **[4x1=4]**

Fill in the blanks with appropriate code for proper working of the function arm(). The function will receive a number and check whether the number is an Armstrong number or not and display message accordingly.

(Armstrong Number is a number whose sum of cubes of the digits is equal to the number. Eg:- $153=1^3+5^3+3^3$)

```
class Armstrong
{
        public void arm(int n)
        {
                int n1=n,sum=0,d;
                while((43)----------------)
                {
                        d=n%10;
                        sum=sum+(44)------------------;
                        n=n/(45)---------------;
                }
                if((46)-----------)
                        System.out.println("Armstrong number");
                else
                        System.out.println("Not Armstrong number");
        }
        }
```

| | | | |
|---|---|---|---|
| (43) | (a) n<0 | (b) n>0 | (c) n==0 |
| (44) | (a) d+d+d | (b) d*d | (c) d*d*d |
| (45) | (a) 10 | (b) 9 | (c) 100 |
| (46) | (a) sum==n | (b) sum==d | (c) sum==n1 |

**Question 9** **[4x1=4]**

**Case Study**

**When a command is issued to execute a program, the control reaches the first line of the program. It keeps executing the statements one by one unless the end of the program is reached. The movement of control from one line to other is known as 'Flow of Control'. The flow of control is mantained in 2 ways namely: Normal Flow of Control and Conditional Flow of Control.The 2 types of Conditional statements are 'If Constructs' and 'Multiple branching statement'.If construct is used to direct the control to execute either of the two blocks of statement based on the given condition. Switch case statement is used to handle multiple branching flow of control.A particular case will be executed when matched with the value of control variable. The default case will be executed only when the value doesn't match with any of the cases listed.Break statement is used at the end of each case when encountered the control is forced to move out of the switch block.Dafault case is executed implicitly if no case is matched in the switch block for the given value of the control variable.In case a break statement is not used at the end of a case, the control enters into the next case for execution. This condition is said to be Fall Through.**

(47) Name the movement of control from one line to other in a program

(a) Control the flow (b) Flow of Control
(c) Controlling the flow (d) None of the above

(48)The condition when the break statement is not used after each case statement, and where the control executes the next case.

(a) Through the Fall (b) Falling through
(c) Failing through (d) Fall Through

(49)The case which gets executed when the value doesn't match with any of the cases listed in the switch case

(a) By default case (b) default (c) return (d)Return

(50) Name the statement which is used to direct the control to execute either of the 2 blocks of statement based on given condition.

(a) if statement (b) while loop (c)for loop (d) switch case

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