LOYOLA SCHOOL, BHUBANESWAR

Half Yearly Evaluation, September 2025

Class: X **Subject: Computer Application** **F.M. = 100** **Time:2Hrs**

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.

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

SECTION A

(Attempt all questions from this Section.)

Q.I. Choose the correct answer:- **[1X20=20]**

1. Identify the correct order of data types from lowest storage to highest storage in bytes.
    a. double,float,char,short
    b. short,float,char,double
    c. char,float,short,double
    d. short,char,float,double
2. Which of the following data type cannot be used with switch case construct?
    a. int
    b. double
    c. String
    d. char
3. Assertion: In an array, the elements are stored in contiguous memory locations of same data type.
   Reason: An array is a reference data type , and when it is created , it points to a block memory where its element are stored.
    a. Both Assertion and Reason are true and Reason is a correct explanation of Assertion.
    b. Both Assertion and Reason are true and Reason is not correct explanation of Assertion.
    c. Assertion is true and Reason is false.
    d. Assertion is false and Reason is true.
4. A shopping mall wants to return the money to the customer in integer form, such that Rs.125.25 becomes Rs.125 and Rs.125.65 becomes Rs.126, Which of the following will do it?
    a. Math.ceil()
    b. Math.round()
    c. Math.random()
    d. Math.rint()

5. In the statement int m[]=new int[10]; the entity m is _____ and [10] is_____.
    a. Subscript,subscripted variable
    b. Subscripted variable,subscript
    c. Array declaration,type declaration
    d. All of these
6. Find the output of the following code:

    int s=14;

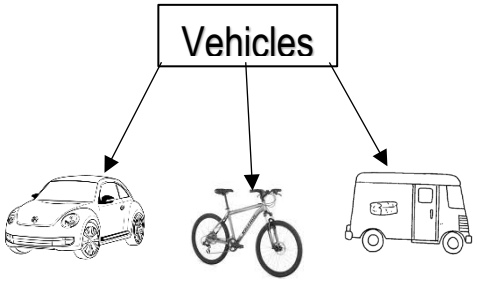
    if(s>20) System.out.print("AB"+((char)(s+64)));

    else System.out.print("BB"+((char)(s+96)));

    System.out.print("CC");
    a. ABCBBNCC
    b. ABBBnCC
    c. BbNCc
    d. BBnCC
7. Constructor overloading implements:-
    a. Inheritance
    b. Polymorphism
    c. Abstraction
    d. Encapsulation
8. What is the value of b, if a=14 b=(++a*(a++ + 5));
    a. 120
    b. 625
    c. 300
    d. 230
9. If the class name is Word, which is/are a valid constructor(s)?
    a. word()
    b. Word(String a)
    c. Word(char b)
    d. Both b and c
10. Which of the following return statement is wrong?
    a. return 0;
    b. return (s);
    c. return (s,p);
    d. return (4);

11. Parameters used in method call statement are-
    a. Actual parameters
    b. Informal parameters
    c. Formal parameters
    d. Void parameters

12. Consider the picture given below and choose the correct statement from the following:-
    a. Vehicles is the object and the pictures are classes
    b. Both vehicles and the pictures are classes
    c. Vehicles is the class and the pictures are objects
    d. Both vehicles and the pictures are objects



13. Identify the type of error in the following code: double a; a=ob.nextInt();
    a. Syntax error
    b. Logical error
    c. Runtime error
    d. No error

14. The technique in which the change in the formal parameter gets reflected in the actual parameter is known as-
    a. Call by reference
    b. Call by value
    c. Call by argument
    d. Call by method

15. Which of the following keyword makes function non-returnable?
    a. public
    b. static
    c. new
    d. void

16. Assertion: Functions in programming help in modularizing code for better organization.
    Reason: Functions allow code reusability by encapsulating a set of instructions that can be used multiple times.
    a. Both Assertion and Reason are true and Reason is a correct explanation of Assertion.
    b. Both Assertion and Reason are true and Reason is not correct explanation of Assertion.
    c. Assertion is true and Reason is false.
    d. Assertion is false and Reason is true.

17. What will be the output: int x[]={23,6,3,9,6,12}; System.out.println(x[x.length/2]);
    a. 3
    b. 12
    c. 9
    d. 6
18. Predict the output:-

    int a=0,i=4;

    while(i<10)a+=++i-i*2; System.out.println("a="+a+"\t"+"i="+i);

    a. Syntax error
    b. a=45 i=-10
    c. a=-45 i=10
    d. Runtime error
19. Which of the following expressions is illegal?
    a. true && false
    b. int j=5>0
    c. char s='\0';
    d. All of the above
20. A valid function name is -
    a. Function()
    b. 3method()
    c. function@()
    d. None of the above

Q.2.Do as directed:- [2X10=20]

1. Write Java Expression for the following:-

    a. $\sqrt[3]{\frac{(a+b)^4}{a^2}}$ b. $\sqrt[3]{n+\sqrt{n^2}}+8$

2. Write the output:-

    int s=1,t=5;t*=--s+--t-++s; System.out.println("s="+s);System.out.println("t="+t);

3. Write the output:-

    int a=2,b=5;

    if(b++%a++==0)

    System.out.println(a+b);

    if((a+b)%3==0)

    System.out.println(b-a);

    else

    System.out.println(a*b);

4. Analyse how many times the loop runs and what will be the output:-

```
for(int k=100;k>0;k/=10)
{if(k%5==0)
continue;
System.out.println(k);}
```

5. Rewrite using while and do-while

```
int i=20;
for( ;  ;i-=2)
{System.out.println(i);
if(i==10) break;}
```

6.
```
class logical
{int m,n;
static int x=3,y=8;
logical(int x,int y)
{m=x;n=y;}
double find()
{double r=Math.pow(m,n);
return r;
}
public static void main()
{logical obj = new logical(2,5);
System.out.println(obj.find());
System.out.println(Math.abs(x-y));}}
```

i)Name the method that gets invoked when an object of a class is created.

ii)Name the formal and actual parameters.

iii)Name the local,instance or class variable.

iv)What is the output produced?

7. Write statement for the following:-

i)To find the sum of second and last element of a one dimensional integer array x

ii)To make the variable s of integer type as a symbolic constant and store the value 3.142f.

8. Write the memory capacities of the following in bits and bytes:-

```
i)double d[]=new double[10];
ii)char c[]=new char[30];
```

9. Name the following:-

   i) A student wants to terminate the execution of a java program if the input value is more than 100. Name the library method which will help the student to perform this particular task.Also write the syntax for the same.
   ii) A student wants to invoke the methods defined in the class without creating an object. Name the java keyword which can be used with the method prototype, so that the method can be accessed without creating an object.

10. Consider the following program segment in which the statements are jumbled,choose the correct order of statements to print perfect squares from an array X.

```
void print(int x[])
{int rt=(int)Math.sqrt(x[i]);---(1)
for(int i=0;i<x.length();i++)---(2)
{System.out.println(x[i])…(3)
int a=rt*rt;---(4)
if(a==x[i])---(5)}}
```

SECTION B

(Attempt any four questions from this Section [15X4=60M]

Q.3. Define a class HotelBooking with the following specifications:

Class name:HotelBooking
Member Variables:-
String guestName-To store the name of the guest.
int days-To store the number of days stayed.
double tariff-To store the rate per day.
double discount:To store the discounted amount.
double totalAmount:To store the total amount to be paid after the discount.
Member Methods:
HotelBooking()-Default constructor to initialise data members.
input:To input the guest's name, number of days stayed and tariff.
calculate():To calculate the discount on the total cost based on the following criteria:-

No.of days	Discount %
Discount for stay of 3 to 5 days	5%
Discount for stay of 6 to 10 days	10%
Discount for stay of 11 to 15 days	15%
Discount for stay of more than 15 days	20%

display():To display the details in the given format:

Guest's Name	No.of days stayed	Total amount after discount
**********	**********	**********

Write a main method to create an object of the class and call the above member methods, for 100 customers.

Q.4. WAP to declare a double single dimensional array for size N , input values into it and print the standard deviation of N real numbers. The standard deviation s is computed according to:- $\sqrt{\frac{(x1-x)^2+(x2-x)^2+\cdots(xN-x)^2}{N}}$ where x=mean of the numbers in the array.

Q.5. Create a class named Pizza that stores details about a pizza. It should contain the following instance variables:-

char pizzasize-to store the size of the pizza(s/S-small,m/M-medium,l/L-large)

int cheese-the number of cheese toppings

int pepperoni-the number of pepperoni toppings

int mushroom-the number of mushroom toppings

Member methods:-

Pizza()-default constructor to store default values.

Pizza(char p,int c,int pp,int m)-Which accepts size and number of toppings as parameters.

calculateCost()-A public method that returns a double value, that is the cost of the pizza. Calculated as-small:Rs.500+Rs.25 per topping,Medium:Rs.650+Rs.25 per topping,Large:Rs.800+Rs.25 per topping and a overall surcharge of 9%.

void display()-to display all the details.

public static void main()-to execute the functions and constructors for N number of customers and print the total amount.

Q.6. Write a program to declare an integer array of size 15, input numbers containing three digits or more in ascending order. Also input a number to be searched. Search using Binary technique, if found print the index and "Search successful" otherwise print "Search unsuccessful"

Q.7.Define a class to overload the method display as follows:-

void display():To print the following format using nested loop

A

b C

d E f

G h I j

K l M n O

void display(int n):To print the sum of the series $\frac{a^1}{2!}-\frac{a^3}{4!}+\frac{a^5}{6!}\ldots upto\ n\ terms$

void display(long n):To input a number, check and print if it is an Evon number. Evon number is a number whose number of digits is equal to the number of even digits. Example: 2462868824, Number of digits =10, number of even numbers=10

Q.8. WAP to declare a class named pal with the following functions:-

boolean palindrome(int n)-which accepts a number as parameter and returns true if the number is a palindrome otherwise returns false.

int prime(int n)-which accepts a number as parameter and returns the count of factors.

public static void main()-which accepts a number and uses the above function to check and print if it's a palprime number.[for eg 11-a prime as well as palindrome number]

**********ALL THE BEST**********