Time:- 2 Hours Second Pre-Board Examination 2022 M.M.:- 100
Computer
Class:- X

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.
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 square brackets [ ].

SECTION A

(Attempt all questions from this section)

Question 1.   [20]

Choose the correct answer and write the option number and the option:

(i) What is the index number of the last element of array a[ ] ?
(a) a.length( ) -1   (b) a[ ].length( )-1   (c) a.length-1   (d) a.len-1

(ii) A _____ variable is visible within the method that it has been declared.
(a) class   (b) local   (c) primitive   (d) object

(iii) What is output ?
```
char c = 'B';
int i = 4;
System.out.println (c+i);
System.out.println((int) c +i);
```
(a) 70   (b) 68   (c) 98   (d) 102
    70   68   98   102

(iv) What is returned by : Math.ceil(-99)
(a) -100   (b) -99   (c) -98   (d) 99

(v) Which of these is not a part of method header?
(a) access specifier (b) method body (c) return type (d) formal paramenter

(vi) Choose the odd one out :
(a) private (b) package   (c) protected (d) public

(vii) What will be the return type of s.endsWith('s')
(a) String   (b) int   (c) boolean   (d) char

(viii) What is the index number of the fourth element of this array? int p[ ] =
{10, 9, 8, 7, 6, 5, 4 };
(a) 3   (b) 4   (c) 7   (d) 6

(ix) Output of : Math.pow(3, 2) + Math.pow(2, 3)

(a) 17.0 (b) 17 (c) 16 (d) 16.0

(x) s.length() function returns

(a) number of characters in a string (b) last character

(c) first character (d) number of characters in a string - 1

(xi) Which of these is of Wrapper class ?

(a) int (b) double (c) Float (d) character

(xii) Which keyword is used to include the classes of a package into our program ?

(a) static (b) import (c) public (d) abstract

(xiii) What value is stored in 'x' :

double a = -7.35 ;

double x = Math.abs(Math.floor (a));

(a) -7.0 (b) -8.0 (c) 8.0 (d) 7.0

(xiv) What should be the datatype of variable 'bornYear' in this expression ?

int bYear = Integer.parseInt (bornYear) ;

(a) String (b) int (c) boolean (d) Integer

(xv) What is output of :

"abcdefghij".substring(3).charAt(3)

(a) d.d (b) d (c) c (d) g

(xvi) Conversion of primitive data to an object of wrapper class

(a) Boxing (b) Autoboxing (c) Explicit conversion (d) Implicit conversion

(xvii) In any array, what is the subscript of the fifth element?

(a) 3 (b) 4 (c) 5 (d) 0

(xviii) Given int d[ ] = { 7, 9, 2, 4, 8, 3, 5 }, find output:

System.out.println(d[3]+ 2 + "--" + d[3+2]);

(a) 4 -- 8 (b) 5 -- 5 (c) 6 -- 3 (d) 6 -- 5

$4 + 2 \not{4} -- 3$

$6 -- 3$

(xix) Given int d[] = { 12, 23, 34, 45, 56, 67 }, find output:

System.out.println(++d[1] + --d[3]);

$24 + 44$ 68

(a) 79 (b) 90 (c) 99 (d) 68

(xx) The return data type of the below function is:

public static int power (String sr, char chr)

(a) String (b) char (c) power (d) int

Question 2.

(i) Evaluate : "AA".concat("ATACAMA".replace('A', 'B')) [2]

(ii) Which keyword causes an immediate exit from switch-case or a loop? [1]

(iii) What is the output of these lines: [2]

    int a[ ]={1, 2, 3, 4, 5};
    int b[ ]={1, 2, 3, 4, 5};
    System.out.println ((a= =b) + ","+ (a[1]= =b[1]));

(iv) Evaluate the result : "ZooM".equalsIgnoreCase("ZOOM") [1]

(v) Fill in the blanks as numbered to check a palindrome : [6]

```
public void palindromeCheck (String str)
{  boolean ___1___ = false ;
for(int i=0 ; i < str.length( )/2 ; i++)
{ if (str.charAt(i) != str.charAt(str.length( )–i-1))
  { flag = true;
    System.out.println(___2___);
    ___3___ ; }
}
if( flag = = false )
  System.out.println("It is a palindrome");
```

(vi) In a single statement print the string named "str", excluding the last word.
[2]

(vii) Design a function 'func', which takes two Strings 'str1' and 'str2' as arguments and returns true or false if the first string is the prefix of second string. [4]

(viii) Linear and Binary are what operations of an array? Which is faster? [2]

SECTION B
(Attempt any four questions)
Each program should be followed by the Variable Description

Question 3. Write a program to input a string and convert it to lower case letters. Display the same string with the first character of each word in upper case.

For Example : **INPUT** : we are in a cyber world

OUTPUT : We Are In A Cyber World

Question 4. Write a program to input marks of 'N' number of students into an array. Calculate and print:

(i) The average of the marks of N students.

(ii) The deviation of each student's marks from the average.

(deviation = mark of student – average)

Question 5. Design a class to overload a function 'volume( )' as follows :

double volume(double r) - with radius(r) as an argument, returns the volume of sphere using formula:

$$v = \frac{4}{3} \times \frac{22}{7} \times r^2$$

(ii) double volume(double h, double r)- with height (h) and radius (r) as arguments, returns the volume of a cylinder using formula:

$$v = \frac{22}{7} \times r^2 \times h$$

(iii) double volume(double l, double b, double r)- with length (l), breadth (b) and height (h) as the arguments, returns the volume of a cuboid using formula:

$$v = l \times b \times h$$

Question 6. Write a program to input thirty names into an array. Sort them in ascending alphabetical order using bubble sort technique and print the final array.

Question 7. Write a program to input a number and print whether it is a special number.

Special number is when the sum of factorials of each digit of number is equal to the original number.

Factorial of a number is the product of all natural numbers from 1 to that number. (! is the symbol of factorial).

Example: 145 is said to be a special number.

Since $1! + 4! + 5! = 1+24+120=145$*, it is a special number.*

Question 8. Write a program to input a string, and convert it to lower case letters. Print the string with the vowels missing.

For Example : **INPUT** : IT IS A RAINY DAY TODAY.

OUPUT : T S RNY DY TDY.