SECOND PRE - BOARD EXAMINATION 2020-21
CLASS X

Time: 2 hrs   COMPUTER APPLICATIONS

AnswerstothisPapermustbewrittenonthepaperprovidedseparately.ouwill**notbeallowe**
dtowrite**duringthefirst15minutes**.Thistimeistobespentinreadingthequestionpaper.The
timegivenattheheadofthisPaperisthetimeallowedforwritingtheanswers.ThisPaperisdiv
idedintotwoSections.Attempt**allquestionsfromSectionA**and**anyfourquestionsfromSec
tionB**.Theintendedmarksforquestionsorpartsofquestionsaregiveninbrackets[].

SECTIONA(40Marks)*Attemptallquestions*

Question 1.

(a) What are the default values of the primitive data type int and float ?   [2]
(b) Name any two OOP's principles.   [2]
(c) What are identifiers ?   [2]
(d) Identify the literals listed below: (i) 0.5 (ii) 'A' (iii) false (iv) "x"   [2]
(e) What is inheritance ?   [2]

Question 2-

(a) Evaluate the value of a. if value of intp = 5, q = 19   [2]
$$\text{int } a = (q - p) > (p - q) ? (q - p) : (p - q);$$

(b) Arrange the following primitive-data types in an ascending order of their size:
    (i) char(ii) byte (iii) double (iv)int   [2]

(c) What is the value stored in variable **'res'** given below :   [2]
double res = Math.pow ("3456558".indexOf('5'), 3);

(d) Name the two types of constructors.   [2]

(e) What does this function return, if the values passed are 30 and 50:   [2]

```
void paws(int a, int b)
{                 30    50
        a =a + b;
        b=a – b;
        a=a – b;
        a = b * b;
        return a;

}
```

Question 3-

(i) Asentenceis stored in **'str'**. Write a SINGLE STATEMENT to print the whole string, excluding the last word.   [2]

(ii) Name any one reference data type. [1]

(iii) What are the two ways of invoking functions? [2]

(iv) The access specifier that gives the most accessibility is .... and the least accessibility is .... [2]

(v) Name a string function which removes the blank spaces provided in the prefix and suffix of a string. [1]

(vi) Name the keyword which is used to resolve the conflict between method parameter and instance variables. [2]

(vii) Give the output of the following program segment and also mention the number of timesthe loop is executed: [2]

```
int a,b;
for (a=6, b=4; a< =24; a=a + 6)
{
    if (a%b==0)
        break;
}
System.out.println(a);
```

(viii) Write the output of the following program code: [2]

```
charch ;
intx=97;
do
{ch=(char) x;
    System.out.print(ch + " " );
    if(x%10 == 0)
        break;
    ++x;
}while(x<=100);
```

(ix). Give the output of this block : [2]

```
{int x;   intar[]={ 1, 2, 3, 4, 5, 6};
    for(x=0; x<= 4; x++)
    ar[x] = ar[x]+ ar[x+1];
    ar[x]=ar[x]+ar[0];

    for(x=0; x<= 5 ; x++)
    System.out.print(ar[x]+ ",");
}
```

(c) Differentiate between formal parameter and actual parameter.

(a) Give the output of the following string functions: [2]

(i) "MISSISSIPPI".indexOf("SISS")+ "MISSISSIPIPE".lastIndexOf('I') [2]

(ii) "CABLE".compareTo("CADET")

SECTIONB(60Marks)

Attempt *any four* questions from this Section. *The answers in this Section should consist of the Programs in either BlueJ environment or any program environment with Java as the base. Each program should be written using **Variable descriptions** and Comments* suchthatthelogicoftheprogramisclearlydepicted.Flow-ChartsandAlgorithms**arenotrequired.**

Or

Question4.

Define a class called **Library** with the following description :

Instance variables/data members :

intacc_num — stores the accession number of the book

String title — stores the title of the book

String author — stores the name of the author

Member methods:

(i) void input ( ) — To input and store the accession number, title and author.

(ii) voiddisplay( ) — To accept the number of days late, calculate the fine charged at the rate of Rs. 2 per day. Display the details in the following format:

Accession Number	Title	Author	Fine Amount	(Rs.)

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

Question5.

A two-digit number is such that when the sum of its digits is added to the product of its digits, the result is equal to the original two-digit number.

For Example: Consider the number 59.

Sum of digits = 5 + 9=14

Product of its digits = 5 x 9 = 45

Sum of the sum of digits and product of digits = 14 + 45 = 59

Write a program to accept a two-digit number. Add the sum of its digits to the product of its digits. If the value is equal to the inputted number, output the message "YES a Special 2-digit number" otherwise, output the message "Not a special 2-digit number".

Question6.
Write a program to declare an array of size 'n'. Input values into the array. Without using a second array, reverse the sequence of the values of the array.
For Example: If the values of the array are: 55, 98, 101, 72, 65, 2
Then the array finally should look like: 2, 65, 72, 101, 98, 55
NOTE: DO NOT *use these above same values in your program.*

Question 7.
Input values into an array of size 'n', and print all the prime numbers in it. Also print the count of such numbers.

Question 8.
Design a class to overload a function **Volume()** as follows:
(i) **double volume (double R)** - with radius 'R' as an argument, returns the volume of sphere using the formula:

$$V = \frac{4}{3}\pi R^3$$

(ii) **double volume (double H, double R)** - with height 'H' and radius 'R' as the arguments, returns volume of a cylinder using the formula:
$$V = \pi R^2 H$$
(iii) **double volume (double L, double B, double H)**- with length'L', breadth 'B' and Height 'H' as the arguments, returns the volume of a cuboid using the formula.
$$V = L \times B \times H$$
Write a main block, with a menu-driven code, which will accept choice from the user and call the above overloaded functions.

Question 9.
Write a program to print 'n' terms of the Fibonacci sequence in reverse order.
For Example: if n = 10, the output should be 34, 21, 13, 8, 5, 3, 2, 1, 1, 0

****