

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. This Paper is divided into two Sections. 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 brackets [].

SECTION A (40 Marks)*Attempt all questions***Question 1.**

- (a) The String trim() method does not affect the whitespaces in the middle of the String (True/False). [2]
- (b) Define Instance Variable. Give an example of the same. [2]
- (c) What is byte code. [2]
- (d) Assign the value of Pi (π) (i.e. 3.142) to a variable with requisite data type. [2]
- (e) The _____ method of Strings performs the same operation as the + operator. [2]

Question 2- What is the value of 'x' in each of these cases: [10]

- (a) $x = ++a + a++ - ++a - a++$; if $a = 100$
- (b) $x = \text{Character.isLowerCase('E')}$;
- (c) $x = \text{"abcdef".endsWith("abc")}$;
- (d) $x = \text{"INTELLIGENT".substring(2, 7)}$;
- (e) $x = a[3] / a[6]$ if $\text{int } a[] = \{ 56, 99, -27, 55, 124, 3, -2, 49 \}$;

Question 3-

- i) What are the values printed? Show full working. [2]
- a) $\text{Math.pow}(25, 0.5) + \text{Math.ceil}(4.2)$;
- b) $\text{int } x = 12; \text{ long } y = x$;
- ii) Name the Java keyword that: [2]
- (a) stores the address of the currently calling object.
- (b) conditionally jumps the control out of the loop

- iii) State the values stored in variables str1 and str2
String s1 = "good"; [2]
String s2="world matters";
String str1 = s2.substring(5).replace('t','n');
String str2 = s1.concat(str1);
- iv) Create a class named 'Inter' with one instance variable as 'zoom' of int type. Initialize the variable using: [4]
(a) default constructor
(b) parameterized constructor.
Use your own variables, wherever if required.
- v) Name the search or sort technique that: [4]
(a) Check each consecutive cell of the array for the key value
(b) Compare adjacent cells of the array to complete the job
- vi) Consider the function: [4]
int run (int a, int b)
{
 if (a % 2 == 0)
 b = b / 2;
 else
 b = b * 30;
 return b;
}
What values are returned if the values passed are
(a) 20, 99
(b) 55, 60
- vii) Using a library function, write a single statement to check if a character is a digit and store the result in a variable var. [2]

SECTION B (60 Marks)

Attempt *any four* questions from this Section. The answers in this Section could consist of the Programs in either BlueJ environment to any program environment with Java as the base. Each program should be written using

Variable descriptions and Comments such that the logic of the program is clearly depicted. Flow-Charts and Algorithms are not required.

[2] **Question4.**

Define a class named BookFair with the following description:

Instance variables/Data members:

String Bname — stores the name of the book

double price — stores the price of the book

Member methods:

- i) BookFair() — Default constructor to initialize data members
ii) void Input() — To input and store the name and the price of the book.
iii) void calculate() — To calculate the price after discount. Discount is calculated based on the following criteria.

Price Discount

Less than or equal to Rs. 1000 2% of price

More than Rs. 1000 and less than or equal to Rs. 3000 10% of price

More than Rs. 3000 15% of price

- iv) void display() — To display the name and price of the book after discount.

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

Question5.

Write a program to input, check and print whether an inputted number is an Abundant Number or not.

[An abundant number is a number that is smaller than the sum of its factors. Sum is calculated excluding the highest factor that is the highest factor is NOT taken into the sum]

For Example: 12.

Sum of its factors, excluding the highest factor(12) = $1+2+3+4+6 = 16$

12 is smaller than 16, so it is an abundant number.

Question6.

Write a program to accept a name and check whether the given name is an odd name or not.

[A name is to be said an odd name if the ASCII code of each character is an odd number,

ie. The ASCII number of **ALL** characters should be an ODD number, otherwise it is not.] For Example : SOMU. ASCII of S is 83, ASCII of O is 79, of M is 77, of U is 85.

Question 7.

Write a program to input 'n' numbers into an integer array. Then print:

- (a) The largest and smallest element
- (b) Product of the odd numbers
- (c) Sum of the even numbers

Question 8.

There are 100 elements in an array, Write a program in JAVA to arrange first 50 elements of the array in ascending order and rest 50 elements into descending order.

Question 9.

Write a program to print the numbers of the following series:

1, 12, 123, 1234, 12345..... n terms

NOTE: This is NOT a pattern program. Do NOT use nested loop.
