H Roll No. .....

TCS–408

B. TECH. (CSE)

(FOURTH SEMESTER)

MID SEMESTER EXAMINATION, 2021

JAVA PROGRAMMING LANGUAGE

Time : 1½ Hours

Maximum Marks : 50

Note : (i) Answer all the questions by choosing any ***one*** of the sub-questions.

(ii) Each question carries 10 marks.

1. (a) Write a static Java int method, longestRun( ), which takes an array of numbers and returns the length of the longest run in the array. A run is a sequence of one or more occurrences of the same

value all next to each other. An array with no elements has a longest run of 0.

Examples :

	nums	longestRun (nums)
(b)	[4, 12, 4, 4]	2
(c)	[10, 10, 10]	3
(d)	[20, 20, 5, 10, 10, 18]	2
(e)	[5, 5, 3, 3, 3, 3, 7, 7, 7]	4
(f)	[12, 8, 17]	1
(g)	[32]	1
(h)	[]	0

public static int longestRun(int[]nums) {}

10 Marks (CO1)

OR

(b) Explain any 5 features of Java (Don't discuss principles of OOPS). And also explain with diagram "Write Once Run Anywhere" concept of Java.

10 Marks (CO1)

2. (a) In Java only a single class can be extended. If there is need to extend more that one class, how this can be achieved. Write the concept with suitable piece of code. 10 Marks (CO2)

OR

(b) Explain the following along with a piece of code : 10 Marks (CO2)

(i) Import and Static import

(ii) Access Specifiers

3. (a) Design a class to represent bank account. Include the following members : 10 Marks (CO2)

- Name of depositor
- Account number
- Type of account
- Balance amount in the account

Methods :

- To assign initial values
- To deposit an amount
- To withdraw an amount after checking balance
- To display the name and balance

OR

(b) Explain how and why strings are immutable in Java. Explain the difference among String, StringBuffer, and StringBuilder. 10 Marks (CO1)

4. (a) Write a Java program to find the maximum occurring character in a string.

10 Marks (CO1)

Sample Input : test string

Output :

Maximum occurring character in the above string is : t

Frequency of maximum occurring character is : 3

OR

(b) Differentiate between the following :

(i) Abstract Class *vs.* Interface

(ii) AutoBoxing and AutUnboxing

10 Marks (CO1)

5. (a) (i) What do you mean by run time polymorphism ? How "*one interface multiple method*" form of polymorphism can be achieved. Explain with suitable programming code. 10 Marks (CO2)

(ii) Explain *super* and *this* keyword by examples.

OR

(b) Explain the purposes of final, finally and finalize() and implement all of them using suitable java code. 10 Marks (CO2)