IT Number: Machine Number: Lab:

Sri Lanka Institute of Information Technology

B.Sc. Degree
in
Information Technology

Mid Examination
Year 1, Semester 2 (2018)
January Intake

Object Oriented Programming (JAVA)
(IT1108)
Paper Version B

Duration: 1 Hour

Instructions to Candidates:

- This is a closed book examination.
- This paper contains 2 questions on 3 pages without the cover page.
- Create a Folder on the **Desktop** with your **IT Number** and save all your programs in the folder.
- Read all questions before answering.
- The total marks obtainable for this examination is **30**.
- Use only the **notepad** as the text editor.

Question 1 (20 Marks)

Write a method call ***calculateEffect*** which calculate the frequency heard by a listener as a float value. The method should take three parameters as the user input (frequency of the source: double, velocity of the listener: double, velocity of the source: double). The formula to calculate the frequency heard by listener is as follows:

frequency heard by listener (f) = $\frac{fs(v+vL)}{v-vS}$

fs= frequency of the source

v= 320.25ms (fixed value)

vS= velocity of the source

vL=velocity of the listener

Write a main method to take the frequency of the source velocity of the listener and velocity of the source as user input and find the frequency heard by listener (f) by calling ***calculateEffect.*** Based on the calculated frequency of the source print the impact of the frequency, according to the following criteria.

Frequency	Impact of the frequency
0-100	Low Impact
101-150	Normal Impact
151-200	High Impact
201>	Ultra Impact

Hint: Use the scanner class to get the inputs from the user

Sample Input:

```
Enter the frequency of the source: 440.45
Enter the velocity of the listener:30
Enter the velocity of the source: 10
```

Sample Output:

```
Frequency heard by listener 497.24
Nature of the frequency is Ultra Impact
```

Note: -round the frequency to one decimal points.

Marking Criteria:

Criteria	**Marks**	**Marks Obtained**
Proper class structure and main method	2	
Importing the Scanner class and their usage	2	
Reading user input	2	
Calling the method with correct parameters	2	
correct method header with correct parameters marks	2	
Rounding the answer	4	
Calculate the Answer	2	
Deciding the answer based on the calculation using nested if else statements	2	
Final Output with Compiled ByteCode	2	
Total Marks	**20**	

Question 2 (10 Marks)

Write a java program which takes two numbers as inputs using command line arguments. Your program should print count sum of sin values between them.

Sample Input: `29 32`

Sample Input: `Sum = sin (30) + sin(31) = -1.392069269415927`

Note: -No rounding is required.

Marking Criteria:

Criteria	Marks	Marks Obtained
Proper class structure and main method	2	
Usage of the command line arguments	2	
Conversions of datatypes	2	
Calculating the Answer with loops	3	
Final Output with Compiled ByteCode	1	
Total Marks	**10**	