Please reference the following website:

<https://www.tutorialspoint.com/lisp/index.htm>

**Part I: Please complete the following questions:**

(5 points each)

Questions:

1. Give a brief example and explanation of how LISP programs accept user input?

It reads in the printed representation of a Lisp object from input-stream, builds and returns the corresponding Lisp object

1. Give a brief example and explanation of how LISP Programs format output in LISP?

A format directive consists of a tilde (~), optional prefix parameters separated by commas, optional colon (:) and at-sign (@) modifiers, and a single character indicating what kind of directive this is.

(defun AreaOfCircle()

(terpri)

(princ "Enter Radius: ")

(setq radius (read))

(setq area (\* 3.1416 radius radius))

(format t "Radius: = ~F~% Area = ~F" radius area)

)

(AreaOfCircle)

1. Give a brief example and explanation of how LISP Programs handle assignment statements in LISP?

(defvar x 234)

(setq x 10)

(let ((x 'a) (y 'b)(z 'c))

(prog ((x '(a b c))(y '(1 2 3))(z '(p q 10)))

In LISP, each variable is represented by a symbol. The variable's name is the name of the symbol and it is stored in the storage cell of the symbol.

1. Give a brief example and explanation of how LISP Programs declare variables in LISP?

The examples are the same as the 3)

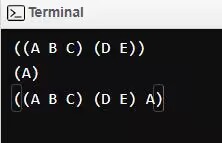
Defconstant PI 3.1415926

1. Can the program be written to incorporate a LIST instead of only ATOMs? Please justify your answer.

Yes

(setq x(list&apos;(a b c)&apos;(d e)))  
(setq y(list&apos;a))  
(print x)  
(print y)  
(terpri)  
(write(append x y))

The terminal are below:



**Part II:**

Use the following website:

<https://www.tutorialspoint.com/execute_lisp_online.php>

On this page, you will see a tab called STDIN. You need to enter the user input on that tab. LISP expects that only directed input streams will be used.

Write the following problem as a LISP program. (50 points)

1. Begin the program
2. (You will need 4 integer variables)
3. Ask the user to enter the first number
4. Read the value in and store it into a variable ***(FirstNum)***
5. Ask the user to enter the second number
6. Read the value in and store it into a variable ***(SecondNum)***
7. Ask the user to enter the third number
8. Read the value in and store it into a variable ***(ThirdNum)***
9. The fourth variable ***(Result)*** is the product of the first two numbers divided by the third number
10. Output the results of the calculations in the form:
    1. The product of ***(FirstNum)*** and ***(SecondNum)*** divided by ***(ThirdNum)*** = ***(Result)***
    2. The variables in part a should be replaced with the values the user entered.
       1. For example, if the input was 4 5 and 2
       2. The output should be:

The product of 4 and 5 divided by 2 = 10

**Part III:** (25 points)

**Fill in the table and take a screen shot of each of your test cases that you used**:

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Test | FirstNum | SecondNum | ThirdNum | Result |
| 1 | 5 | 2 | 2 | 5.0 |
| 2 | 5 | 4 | 2 | 10.0 |
| 3 | 9 | 5 | 3 | 15.0 |
| 4 | 2 | 5 | 3 | 3.3333333 |

The code are here:

(defun discussion4()  
(princ"Enter 1st Number:")  
(setq FirstNum(read))  
(princ"Enter 2nd Number:")  
(setq SecondNum(read))  
(princ"Enter 3rd Number:")  
(setq ThirdNum(read))  
(setq Result(/(\* FirstNum  SecondNum) Thirdnum))  
(format t "Result = ~f" Result)  
)  
(discussion4)