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Subject :- Introduction to Computer
Programming.

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Assignment/Quiz

Computer Programming.

Q.1 (a) Design an algorithm and draw a flowchart that will read the two sides of a rectangle and calculate its area.

(b) Name different types of errors which can occur during the execution of a program.

Q.2 (a) Design an algorithm that reads two values, determines the largest value and prints the largest value with an identifying message.

(b) What do you understand by the term "Maintain and update the Program".

Q.3 Differentiate between the following.

- (a) Bug & Debug
- (b) Syntex error & Logical error
- (c) Compiler & Assembler
- (d) System Software & Application Software
- (e) Low level language & High level language

IID # 7209

Good Luck.....

Question # 01

Part # a) = Design an algorithm & draw a flow chart that will read the two sides of a rectangle & calculate its area.

Ans:- => Pseudo code;

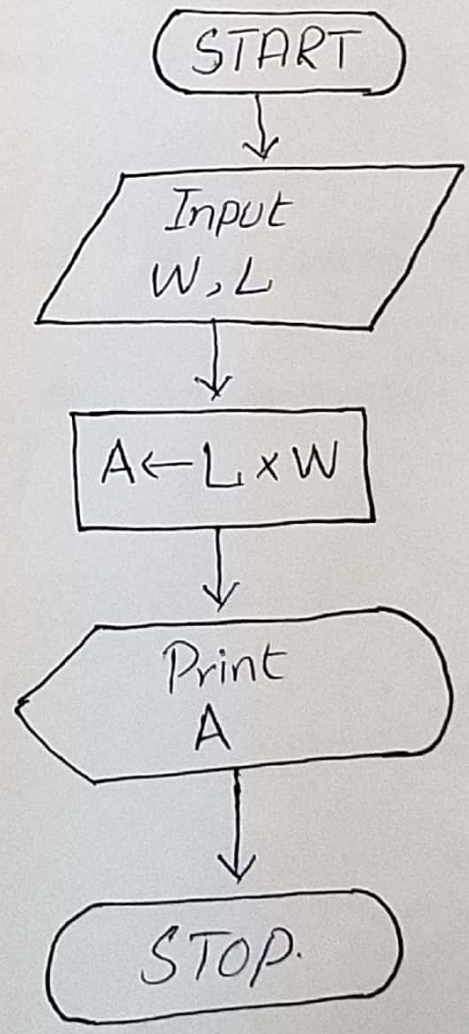
- Input the width (w) & Length (L) of a rectangle.
- Calculate the area (A) by multiplying L with w.
- Print A.

=> Algorithm:-

Step #1: Input W, L,

Step #2: $A \leftarrow L \times W$,

Step #3: Print-A



(2)

Question # 01:-

Part # b):- Name the different types of errors which can occur during the execution of a program.

Ans:- During the execution of a program, the errors that may occur are;

1) = Syntax Error:- Errors occur when our program contains grammatical.

Ex: Suppose we didn't put semicolon at the end of a statement.

2) = Run time error:- These errors occur while the program is running.

3) = Logical error:- Errors such as calculation mistakes, etc.

4) = Semantic error:- Errors due to an improper use of program statements.

Question # 02.

Part # A) = Design an algorithm that reads two values; determine the largest value & Print the largest value with an identifying message.

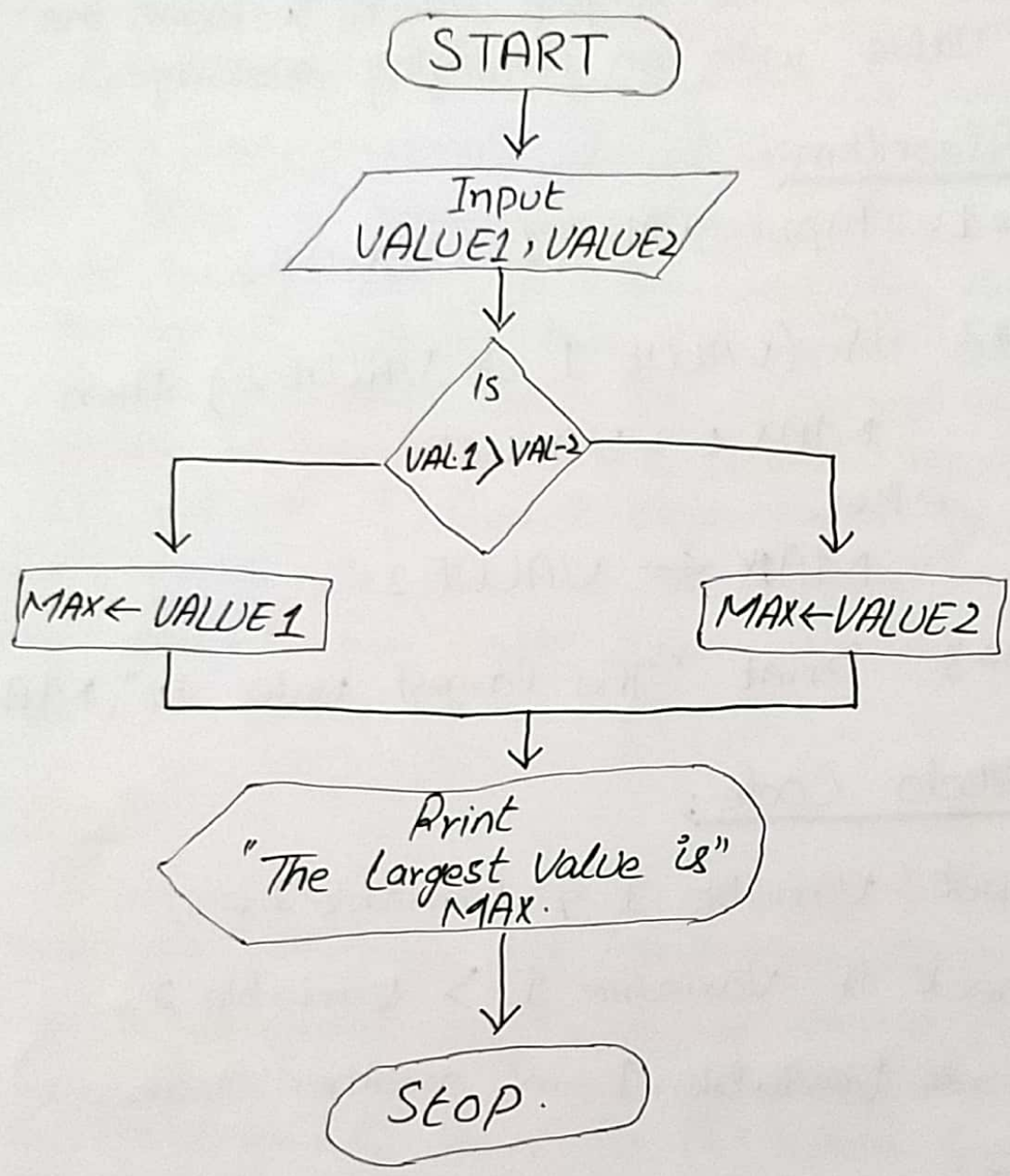
Ans: => Algorithm:-

- Step #1: Input VALUE1 , VALUE2.
- Step #2: if (VALUE 1 > VALUE2) then
 MAX ← VALUE1
 else,
 MAX ← VALUE 2.
- Step #3: Print "The largest value is", MAX.

=> Pseudo Code;

- Input Variable 1 & Variable 2,
- check if Variable 1 > Variable 2,
- Store Variable 1 in another Variable "MAX".
 Else,
- Store Variable 2 in another variable "MAX".
- Print Max.

Flowchart of 2 (two) VALUE:-



Question #02:-

⑤

Part # b) = what do you understand by the term "Maintain & update the Program".

Ans = Maintain & update the Program:-

Maintain & update the Program the modification of a Software product after delivery to correct faults, to improve performance or other attributes or to adapt the product to a modified environment.

Question #03.

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Part-a):- Bug:-

When a fault in a program which causes the Program to perform in an unintended or unanticipated manner. Bug See, anomaly, defect, error, exception & fault. Bug is ~~term~~ terminology of Tester.

While testing when a tester executes the test cases he might observe that the actual test ~~to~~ result do not match from the expected results. The variation in the expected & actual results is known as defects. Different organizations have different names to describe this variation, commonly defects are also known as bug, problem incidents or issues.

B Debug:-

Debugging is a process of locating & fixing errors in a computer program, or hardware device. To debug a program or hardware device, you start with a known problem, isolate the source of the problem, & then fix it. When someone says they have debugged a problem, or "removed the bugs" in a program, they ~~have~~ imply that they have fixed the program, so that the bugs no longer exist in it.

Bugging is a necessary process in almost any new software or hardware development process, whether a commercial product an enterprise, or personal application program.

b) Syntax Error:-

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A Syntax error is an error in the source code of a program. Since computer programs must follow strict syntax to compile correctly, any aspects of the code that do not conform to the syntax of the programming language will produce a syntax error. Syntax errors are small grammatical mistakes, sometimes limited to a single character. For example, a missing semicolon at the end of the line or an extra bracket at the end of the function may produce a syntax error. Some software development (IDEs) check the source code for syntax errors in real time, while others only generate syntax errors when a program is compiled.

⇒ Logical Error:-

A logical error is a mistake in a program's source code that results in incorrect or unexpected behavior. It is a type of runtime error that may simply produce the wrong output or may cause a program to crash while running.

Many different types of programming mistakes can cause logical errors. For example, assigning a value to the wrong variable may cause a series of unexpected program errors. Small typos that do not produce syntax errors may cause a logical error. If statement may cause a logical error since the single equal sign (=) should be a double equal sign (==).

incorrect: `if ($ i = 1) { }`

Correct: `if ($ i == 1) { }`

C) = Compiler:-

- ⇒ A Compiler is a program that translates User readable Source Code into Computer executable machine Code.
- ⇒ To do this successfully the human readable code must comply with the Syntax rules of whichever Programming language it is written in.
- ⇒ The compiler is only a program & cannot fix your programs, for you. If you make a mistake you have to correct the syntax for it won't compile.
- ⇒ A compiler complexity depends on the syntax of the language & how much abstraction that programming language provides.

Assembler:-

An assembler is a program that turns assembly language into machine code. An assembler is a program that takes basic computer instructions & converts them into a pattern of bits that the computer processor can use to perform its basic operations. Some people call these instructions assembler language & others use the term assembler language.

d) Application Software:-

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⇒ Those software which are used to perform the specific tasks of the computer are known as application software.

⇒ This software performs only a single task.

⇒ They come in different categories;

- Anti Viruses (Norton Anti-virus).
- Text Editings (Note pad, word pad, MS word).
- Presentation Making (MS Power-point).
- Calculation Software (MS Excel).
- Compression Software (WinZip, WinRAR).

⇒ Features of Application Software:-

- Consist of programs designed to make user more productive & / or assist with personal tasks.
- Help user solve particular problem.
- In most cases, application software resides on the computer's hard disk.
- Application software can also be stored on CD's, DVD's & flash or keychain storage devices.

⇒ Categories of Application Software;

- Business Software.
- Graphic & Multimedia.
- Home, Personal, Education.
- Communication.

Question # 03. Different b/w the following;

Part-d) = System Software:-

- ⇒ Software which is used to perform the basic functionality of the computer or in other words bridge between user & hardware.
- ⇒ After assembling the hardware first of all we install system software on the PC to make it functional.
- ⇒ Also known as operating system.
- ⇒ we can't make personal computer functional without the system software.
- ⇒ It is necessary part in the operating of the computer.
- ⇒ It is collection of programs designed to operate, control & extend the processing capabilities of the computer.
- ⇒ Make operation of computer more effective & efficient.
- ⇒ Help hardware components work together & provide support for the development & execution of the application software.
- ⇒ Programs included in system software package are known as system programs & the programmers who develop those programs are known as programmers.

For Example:-

- Operating System.
- Utilities Programs.
- Communication Software.
- Assembler, interpreter, etc.

e) = Low Level Languages:-

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- ⇒ Computer languages consisting of mnemonics that directly correspond to machine language instructions.
- ⇒ Very close to machine language.
- ⇒ Concentrate on machine architecture.
- ⇒ Machine language, Assembly language.
- ⇒ Undastandable; (• Mnemonic, • binary, • hexadecimal).
- ⇒ Easy of writing;
 - Designed for the ease of the computer running the language.
 - Difficult for user to read & write.
- ⇒ Running Speed;
 - Faster
 - No. need of compile.
 - More efficient.

- High Level Language:-

- ⇒ Machine - independent Programming Language.
- ⇒ Concentrate on the Logic of Problem.
- ⇒ C , C++ , Java .
- ⇒ Simple English & mathematics System (Understandable)
- ⇒ Ease of writing;
 - Designed for the ease of the person writing the language.
 - Using language that user can understand, English
- ⇒ Running Speed;
 - Need compiler or interpreter.
 - Translate into machine code.
 - Lower speed execution.